

# NEW

# ENERGY

# Technologies

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Research on advanced aerospace systems and new energy sources

## Time Machine

*Conference in Moscow:  
discussion of the patent application  
on the method and device to control  
temporal parameters of matter*







# Time Machine

Experiments by research group "KOSMOPOISK"  
Summer, 2001



Device designed  
by Faraday Lab Ltd, 2002

Alexander V. Frolov  
Vadim A. Chernobrov  
April 12, 2003, Conference hall  
Hotel "Cosmos", Moscow







## Experiment on the generation of gravitational field

*by Dmitry Yu. Tsipenuk*

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*Sergey S. Abramov*



## Model of Adams Motor-Generator

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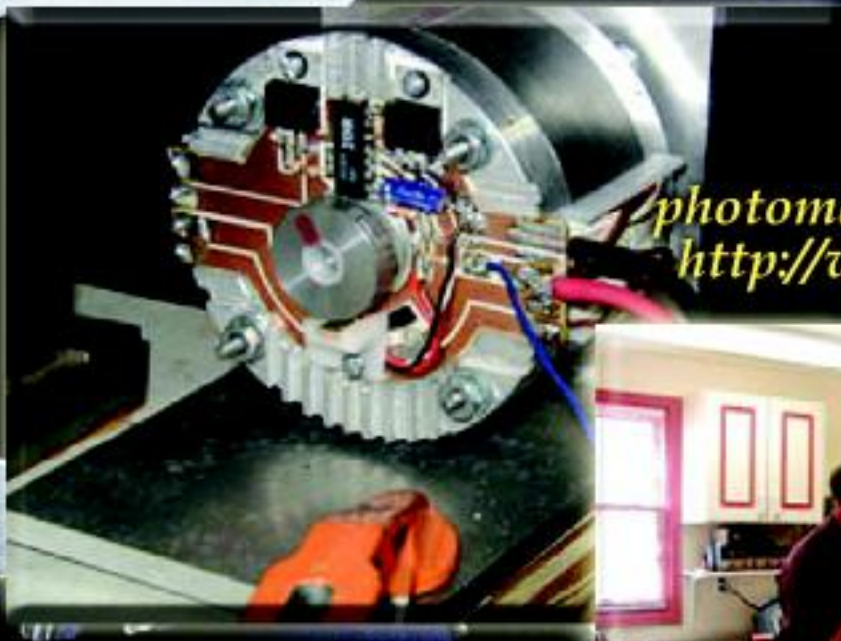


## Electrolytic photoaccumulator for the XXI century energy systems

*Read the new article by Anton I. Egorov*



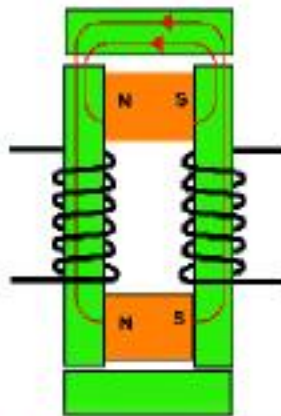
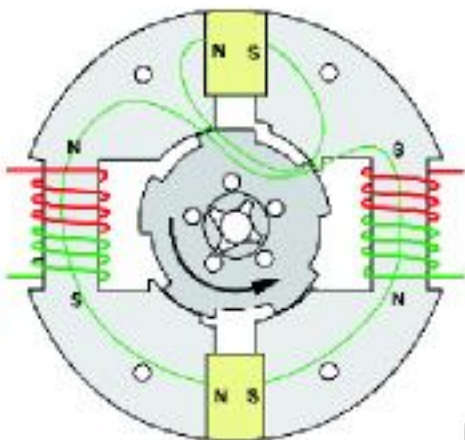
# Flynn Generator



*Original version of  
photomaterials is presented at  
<http://www.flynnresearch.net>*



**Joe Flynn Laboratory, USA**



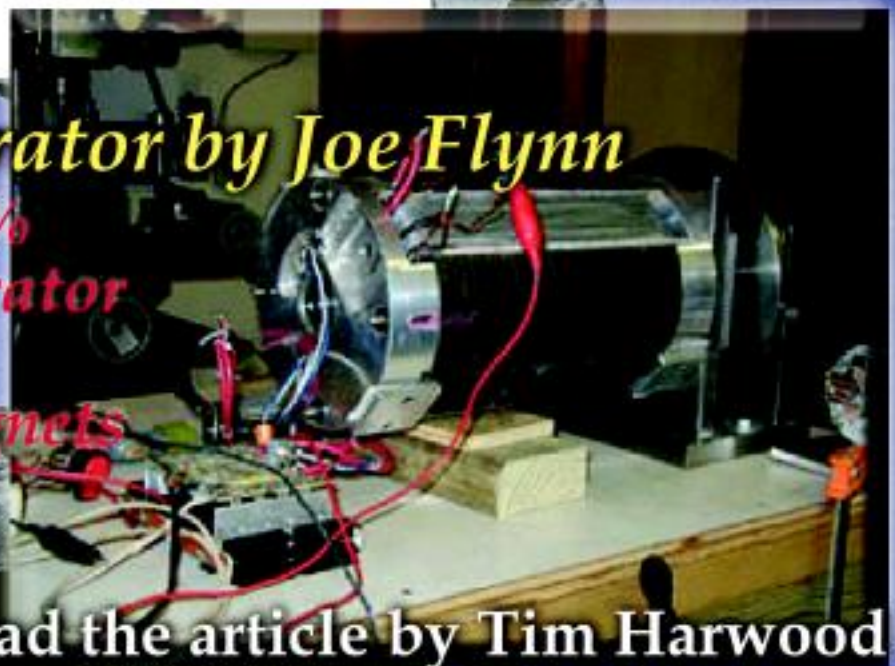
***Electric generator by Joe Flynn***

***More than 350%  
efficiency generator  
operating on  
permanent magnets***

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**Read the article by Tim Harwood  
in this issue**



## NEW ENERGY TECHNOLOGIES #12

1. Works on the Designing of Time Machines. Vadim A. Chernobrov (Russia)
2. Control of Temporal Parameters of Physical Processes. Alexander V. Frolov (Russia)
3. Etherodynamics as a New Field of Physics. Vladimir A. Atsukovsky (Russia)
4. Electromagnetic Gravitational Interaction Vadim Ya. Kosyev (Russia)
5. Medium For Existing of Matter in Nature. Anatoly V. Rykov (Russia)
6. Adams Motor. Sergey S. Abramov (Russia)
7. Field Transformation in the Model of Extended Space. Dmitry Yu. Tsipenyuk (Russia)
8. Joe Flynn's Parallel Path Magnetic Technology. Tim Harwood (USA)
9. Flynn Laboratory Photos
10. Flux-machine and Its Analogies. Review
11. Russian Patents on Alternative Energetics.
12. Gravitational Spaceships. Gregory R. Uspensky (Russia)
13. On Velocity Of Drive-Free Motion. S.A. Gerasimov , V.V. Stashenko (Russia)
14. Electromagnetic Self-Action. S.A. Gerasimov, A.V. Volos (Russia)
15. Uranium Photoaccumulator. Anton I. Yegorov (Russia)
16. Global Energy Prize (reportage)
17. Teleportation. Alla V. Pashova (Russia)
18. "Mass Defect" in Home Conditions. Prokofy V. Sherbak (Russia)
19. Aether as Unified Field. Alexander M. Mishin (Russia)
20. Global Energy. Philip M. Kanarev (Russia)
21. Fusion Processes Of Molecules Of Oxygen, Hydrogen And Water. Philip M. Kanarev (Russia)
22. Plasma Energy Power Generation. Bruce A. Perreault (USA)
23. News
24. The Marcus Device Controversy. Tim Ventura (USA)
25. Systems of conversion of thermal energy to mechanical one. Review
26. I. Prigozin
27. Letters



# CONFERENCE "THE TIME MACHINE"

*Editorial: On April 12 of 2003 a scientific conference "The Time Machine" was organized by Faraday Laboratories Ltd in Moscow, Russia. It was devoted to the experiments on control of space-time physical properties. At the conference there were discussed problems of time and gravitation in the context of etherodynamics, experiments and applied aspects of these technologies. Below we publish a review of the main reports presented at the conference.*

## The First Results of the Works on the Designing of Devices to Control Parameters of Physical Processes (of Time)

### Further Plans on Designing of the Time Machine

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To conduct the experiments on the influence upon physical Time (density of space energy) some special devices were used as a general method of such influence. These devices can create converging waves which can cause the appearance of quasi-monopole in the confined space. *Quasi-monopole* is a part of space which has some parameters of hypothetical unitary monopole or bunch of such particles (in particular, it allows registering one magnetic pole by means of measuring equipment from the outside at some distance from this pole).

The pilot experiments have shown that it is very difficult (if not impossible) to create long-living quasi-monopole

by means of permanent magnets or electromagnets operating on direct currents (in this case quasi-monopole represents a space with one outer and one inner magnetic pole). It can be explained by the fact that lines of force of the "inner pole" invariably find a weak spot in the heterogeneous surface of magnets and break out. As a result, at the device along with one "outer" magnetic pole there is a local output of magnetic lines of the "inner" pole.

During the designing of new devices there was a task to create a quasi-monopole situation in the confined space. This situation should be created not uniformly but transiently by pulsation method. Frequency of work of electromagnetic oscillators first of all was selected depending on linear dimensions of the devices. Selection of the frequency was made in such a way that one period of pulsation does not exceed the period of time which is necessary for electromagnetic waves to reach the center and opposite waves of the device.

At the designing of laboratory devices, which generate converging longitudinal waves, several different principles to obtain required parameters were considered in the multi-layer quasi-monopole, which works in high-frequency mode. Several types of the devices were realized at different degrees of development and with different success. It was shown that the simplest devices were that ones which used electromagnetic (solenoid) oscillators connected in series and in parallel. In different experiments between 3 and 5 such surfaces were used. These surfaces were called electromagnetic work surfaces (EWS). All layers of EWS of different diameters were mounted in series in each other (like *matreshka*). The outer layer was either mounted at force shell or simultaneously represented such a shell by itself.



The size of the maximal EWS was about 0.9 m, the diameter of the minimal (inner) EWS was equal to 115 mm that was enough to place laboratory animals inside the control detection devices. Laboratory animals were used to determine the consequences of the influence of converging spherical electromagnetic waves. Payload, (i.e. that which was directly used for transfer in Time-Space), included the afore-mentioned detection devices and (occasionally) laboratory animals. The term “payload” was coined by analogy with the term which is used in cosmonautics. Volume of payload section was placed in the center of symmetry of the Time Machine (TM). In all the earliest Machines (except the 7<sup>th</sup> model) this volume still has not exceeded the volume of a football. The device with an outer diameter of 2.1 m and inner payload section of 1 m has the maximum size. It allows making human-aided experiments.

At different stages of the experiments the calculations were made by all available known modern methods to fix time. All types of electronic, quartz, mechanical and several specially made doubled quartz generators were used (there were compared frequency readings of measuring and etalon heat-insulated generators which were placed at a distance). Certain experiments used lightguiding diodes and some other methods. Before and after the experiment (more rarely during the experiment) readings of measurement clocks were periodically compared with those of an etalon clock and with signals of exact time which were transmitting by radio. Other physical factors causes side effects upon some types of measuring devices, for example, upon quartz-crystal clocks. However, doubling of measurement methods allowed essentially decreasing inaccuracy of measurements.

At some operating modes (which were not always predicted) the change of Time speed was attained (Prof. Nikolay A. Kozyrev called it density of Time  $t/t_0$ ). This change came to about a fraction of a second per an etalon hour. Let us take usual “etalon” earth time as  $t_0 = +1$  then it becomes clear that it is speed range of  $+0.99 < t/t_0 < +1.01$  which is researched in the experiments. Thus being placed inside the device, the inanimate objects and animals were transferred in the Future (with “above-zero” speed) more slowly or faster than those around them. It occurred at all operational modes of the device (deceleration or acceleration).

Difference of Time (gradient of Time speed or curvature of Space-Time field) was observed not only inside the TM, though there is no doubt that a maximal value of changed Time was registered inside the smallest

“matreshka”. As was expected, during the experiments Time change was also registered outside the device. However such change which had an opposite sign was smaller than the change inside the device approximately by an order of magnitude. It entirely corresponds to geometric laws, i.e. in proportion to the cube of the distance).

In other words, TM influences not only its inner part and pay load but also the environment. It bears a strong resemblance to jet propulsion but in Time and not in Space. It is a flight which is realized by rejection of Time instead of mass.

Thus it was determined that the processes of deceleration and acceleration of Time distinctly differ in their nature and consequences. In such a way the deceleration was considerably smoother and more stable. During acceleration there were observed sudden changes in readings and this operational mode was characterized by general instability and dependence on any (or many) external factors. Particularly, acceleration instability also consisted in the following: at fixed power the value speed of Time depended on the time of day and situation of the Moon. Possibly it also depended on some other factors including the presence of an operator or other people near the device. Even insignificant external influence, for example, mechanical shaking, caused the change of speed value which sometimes was rather significant.

Inside the laboratory devices there was also registered that **Time can change with some sluggishness**. After the changed Time speed influenced some physical object (for example, soil) then residual effects were observed at it for some period of time. These effects can be eliminated only by the influence of another speed of Time.

### ***Preliminary general conclusions***

The Present is the transfer or transformation of the polyvariant easily changeable Future into the univariant unchangeable Past. Thus flights in the Past (at “negative” density-speed  $t/t_0$ ) and in the Future will happen in different ways. They can be compared with the motion of an ant along the tree: from any point of the tree (i.e. from the Present) there is only one way downwards open to the ant (i.e. in the Past) and many different ways upwards (i.e. in the Future). However among all the ways to the Future undoubtedly there are most probable, low-probable and almost improbable variants for development of the Future. The less probable this variant of the Future the more unstable and energy-intensive the motion to the Future will be. According to



the “law of the crown of tree”, return to the Present is possible only if when being in the Past the traveler does not interfere in the course of events and does not change the course of the past History. Otherwise the chronotraveler will return to the parallel Present from the Past by another branch of History. Penetration to the Future from the Present is hampered by the choice of the branch for transference. However return from any variant of the Future into the Present is possible at any scenario if there are no fusions of different variants of History...

In other words, we have a circumstantial evidence of the assumption that Time has more than one dimension. Thus there is an affirmation of the theoretical inferences

of R. Bartini who believed that Time has 3 dimensions. Hence we can consider our terrestrial globe as 6-dimensional where the dimensions are: length; width; height; age or date of Time; variant of History or blur of Time; density or speed of Time. Thus the notion of “Arrows of Time” is completely absent in the fourth dimension (date of Time) but it is a special case of the notion of the sixth dimension i.e. speed of Time. At the same time the notion of speed of Time also relates to the physical notions of gravitation and energy. Thus the notion of “Einstein-Rosen bridge”, which was introduced in 1916, or notion of “worm course”, which was introduced by John Willer in the end of the fifties, are connected with transference in the 5<sup>th</sup> and 6<sup>th</sup> dimensions.

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## Method and Device to Control Temporal Parameters of Physical Processes by Means of Changing of Energy Density of Space

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*This invention belongs to the methods and devices to provide control on rate of physical processes (that includes the process of the existence of matter in space-time) by means of increasing or decreasing of energy density of space (i.e. energy density of physical vacuum or density of the aether).*

### Let us consider the history of the invention:

Earlier there were proposed some methods and devices to influence the rate of physical and chemical reactions,

biological processes or period of oscillation of the system. In the works by N.A. Kozyrev [1] there is a description of the experiments on the influence of some process (for example, process of evaporation or crystallization of matter) upon the period of another process, which serves as a detector and can be compared with reference oscillation process. In one case, the rate of oscillations of the detector decreases in the surrounding area near the process of matter evaporation. In another case, the rate of detector oscillations increases in the surrounding area near the process of matter crystallization. If we use a term of “entropy” then it is possible to say that the processes which are accompanied with entropy increasing (for example, conversion of matter from solid state into liquid one) influence on the matter (surrounding processes) in such a way that entropy of systems decreases. In another case, for example, near the process of crystallization, entropy of systems increases in the surrounding area near this process. Kozyrev used the term “wave of density of time” and he made a conclusion that in addition to “directivity” of time (time course) there are active properties of time, for example, “density of time”.

To develop this approach for applied purposes it is necessary to use in-depth analysis of the physical sense



of the “time density” notion. Connection of notions about “time directivity” and “entropy of the system” was demonstrated in the work “Introduction into thermodynamic of irreversible processes”, 1964 by Ilya Prigozhin [2]. In the work “Quantum fluctuations of vacuum in curved space and theory of gravitation” by A.D. Sakharov [3] the conception of vacuum structure was suggested. In the USA the work “Can the vacuum be engineered for space flight applications?” by H.E. Puthoff [4] is well-known. The author considered the applied aspects for study of vacuum structure and described the method and device to obtain propulsive force by means of changes in vacuum properties.

A substantive conception of time and methods for creation of waves of energy density were also considered by Prof. K.P. Butusov in the work “Time is a physical substance”, 1991 [5]. In the book “What is The Time?” by Yu. G. Belostotsky [6] the connection between the notions of time and aether was demonstrated. This connection was considered from the point of view of astrophysics there.

We can also say that the modern conception of aether is successfully developed by V.A. Atsukovsky in his works [7].

In my articles, for example, “Physical principles of the Time Machine” [8], it was demonstrated that to develop experimental works on the topic it is useful to clarify the terminology and to consider **“waves of time density” as longitudinal waves of energy density in space**. In this case the notion of “time density” has a physical sense of energy density (aether density).

This approach can be realized practically by means of classical electro-technical and radio engineering methods and it is a development of aether-dynamical conception on the nature of electricity and magnetism by M. Faraday, “Experimental researches on electricity”, volume 3, [9].

Let us consider a usual bipolar magnet from the point of view of aether-dynamics. Then it is possible to say that it is inflow and outflow of aether, i.e. it is a balanced energy system which does not change energy density in space. In this case it is evident that creation of magnetic monopole or modeling of quazi-monopole by means of electro-dynamical methods is a technical basis to create some local change of energy density in space.

Electric processes could also be used alongside with the magnetic phenomena. For example, in another book “Symmetrization of Maxwell-Lorenz equation” by Prof. Butusov [10] the creation of longitudinal wave was also

considered. It was demonstrated that an electrically charged sphere can radiate longitudinal wave when the sphere radius is changing, i.e. when its surface is changing while the value of electric charge is constant.

One more well-known method is described in the book “Experimental gravitonics” by Polyakov [11]. There is a consideration of the generation of gravitational waves at the high-frequency magnetization and demagnetization of ferromagnetic material, i.e. at the powerful volume magnetostriction. Since at this phenomenon there are changes of matter density (i.e. changes of energy density in space, which is occupied by matter), then volume magnetostriction is a special case of changes of energy density.

Earlier Vadim A. Chernobrov had described a method and device to control temporal characteristics of physical and chemical processes by means of creation of the magnetic monopole (quasi-monopole). In this magnetic mono-pole there is a convergent wave, which is created by several sources situated in the spherical frame. According to this method in the multilayer spherical structure where every layer (the so called “electromagnetic work surface”) is an assembly of electromagnets, by means of series connection of the layers the wave is created, which converges to the center of the device. The device has the same outside magnetic poles of the electromagnets (and the same inner poles) and thus a model of macroscopic magnetic monopole is created.

We assume that at in-phase operation of all sources of waves, interference of longitudinal waves provides some change of value of energy density of space in the focus of the system.

Experimental facts prove that detectors installed in the center of the device (for example, mechanical or electromagnetic oscillators) show change of period in their own oscillations. We have protected them by shielding them from heat radiation as well as from other kinds of electromagnetic influence. Thus it is possible to assert that the detectors decelerate or accelerate their oscillation period depending on the energy density, which is generated in the center of the device.

However for the experiments made by means of such a device, accurate adjustments of all wave sources are required to provide their in-phase operation. At the same time, operational stability of the system depends on the operational stability of each of the wave sources. Increase of the impulse frequency causes increase of



the effect; however, it is limited by the parameters of electromagnets and generator of impulses. Besides, to increase the effect it is necessary to use more powerful energy sources since the current in the windings of electromagnets determines the value of the magnetic field of the created quasi-monopole.

Since the efficiency of such systems directly depends on the frequency and the value of changes of energy density in space, then in the next version of realization of this technology we suggest using of plasma shells instead of electromagnetic working surfaces. This will allow significant improvement in the specific parameters of the device.

Thus let us consider general engineering principles of operation and outline the ways to develop this method. Fig 1 represents a three-layered electromagnetic emitter. This electromagnetic emitter is designed according to the invention in which the directed radiation of wave of energy density is created along the axis of the device.

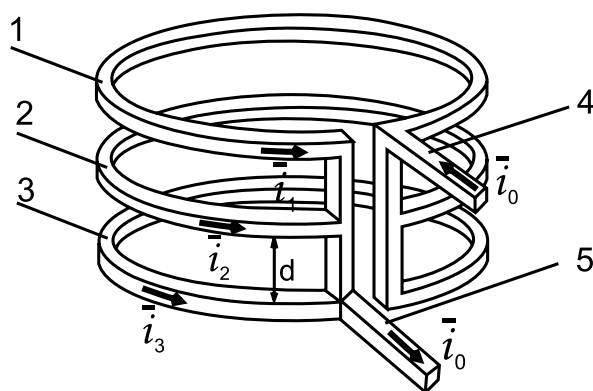


Fig. 1

Three-layered electromagnet

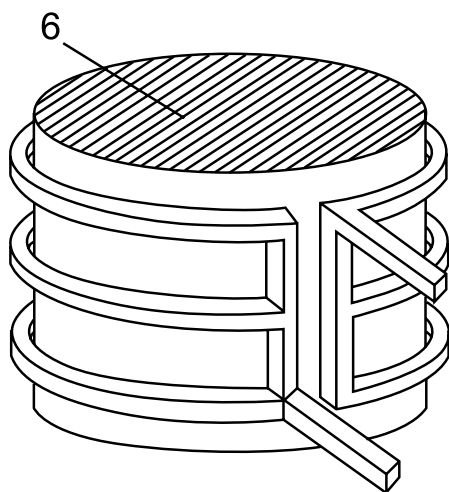


Fig. 2

Three-layered electromagnet with ferrite core

The device is designed according to the idea by Vadim A. Chernobrov for creation of the directed wave of energy density by means of phase shift in propagation of impulse front in three current branches, namely  $i_1$ ,  $i_2$ ,  $i_3$ . These branches are displaced along the electromagnet axis at some distance  $d$ .

The device works in the following way. When the pulsed generator is activated, front of current pulse  $i_0$  appears at the output 4. Impulse front at branch 1 advances impulse front at branch 2 that is caused by spatial shift of current branches 1, 2, 3 relatively to each other along the electromagnet axis at the distance  $d$ . Impulse front at branch 2 in its turn advances impulse front at branch 3 for a certain time  $T$ . The second output of the electromagnet 5 is placed in such a way that impulse front at branch 1 will phase lag behind the impulse front at branch 2 (which in its turn will phase lag behind the impulse front at branch 3) for the same period of time  $T$ . Therefore at branch 5 the united impulse front is generated again.

Time  $T$  can be calculated in the following way:

$$T = d/c \text{ (seconds)} \quad (1)$$

where  $c$  is a constant of propagation of impulse front. This constant is known as velocity of light.

At each impulse the  $T$  (i.e. the value of relative lag of impulse front) is a constant value. Thus high-frequency consequent excitation of layers of the electromagnet appears at each impulse. The frequency of the excitation is calculated in the following way:

$$f = 1/T \quad (2)$$

where  $T$  is relative lag of impulse front in seconds.

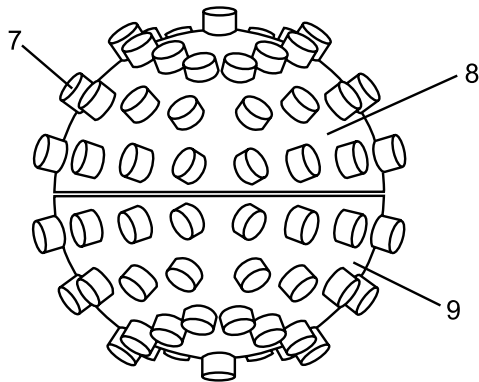
There is an example of frequency calculation: for the shift distance  $d = 7 \text{ mm}$  we can calculate a lag  $T = (7/2.997924) \times 10^{-11} = 2.335 \times 10^{-11} \text{ (seconds)}$  and frequency  $f = 1/T$  approximately comes to  $4.28 \times 10^{10} \text{ (Hertz)}$ .

Thus this design of three-layered electromagnetic emitter allows creating the waves of super-high-frequency band (for example of millimeter range) without the use of a semiconductor or other radio components.

It is very expedient to use the electromagnets designed with magnetostrictive material cores, that will significantly increase energy density of the longitudinal

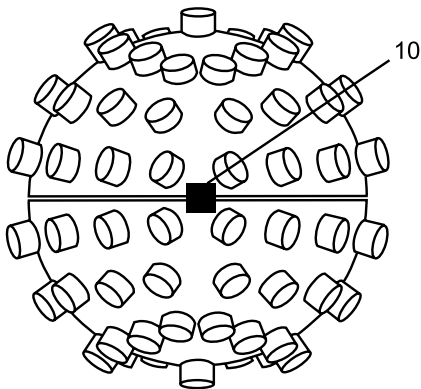


wave, which is generated by the multilayer electromagnet. In Fig. 2 there is an emitter with the core. In the case of high-frequency ferromagnetic magnetostrictive materials 6 the efficiency of emitter operation significantly increases.



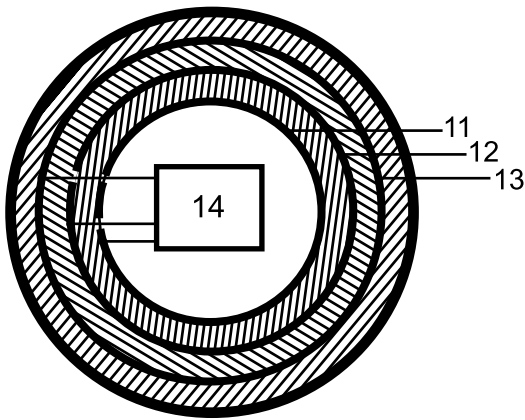
**Fig. 3**  
Spherical design

Fig. 3 represents the spherical distribution of emitters 7 at the upper 8 and lower 9 hemisphere of the frame which could be opened in order to place detectors and different objects inside. It can also allow to establish in what way the changes of density of space energy influence the properties of different materials, velocity of physical and biological processes as well as chemical reactions. The installation of detectors 10 inside the device is shown on Fig. 4.



**Fig. 4**  
Detectors inside the system

Another version of design is represented in Fig. 5, where the suggested method is realized by means of a spherical electric capacitor with three coats 11, 12, 13. Each capacitor coat is connected to the outlet of three-phase pulsed generator 14.



**Fig. 5**  
Three-layered spherical capacitor

In this case the wave of energy density is created without electromagnetic emitters and this principle is not related to the modelling of magnetic quasi-monopole. The device operates due to the control unit, which provides the high-frequency changes of electric potential at each coat in such a way that the mode of high-frequency converging or diverging wave of energy density is created. In fact it is a standard three-phase generator but it produces not the rotation of the rotor of some electromotor but **“compression” or “decompression” of aether**. Aether is “pumped” in the center of the device or “pumped out” of the center.

In this case there is no need to tune separate sources of waves to make the device work in in-phased mode. It ensures reliability of the device operation if to be compared to the quasi-monopole. Besides, much less energy is necessary for the processes of charging and discharging of multi-layer spherical electric capacitor than for creation of magnetic field by means of conductivity currents.

Since the efficiency of such systems directly depends on the frequency and value of changes of energy density in space, we suggest the use of plasma shells instead of electromagnetic work surfaces for the next version of the device. It will allow significantly improvment in the specific parameters of the device. For that it is enough to place the electrodes of the multi-layers capacitor in a low-pressure gas area and these electrodes should be made as gauze electrodes. At that the wave is created in plasma, which is excited layerwise by several gauze electrodes placed in a spherical space between the inner and outer spherical bodies of the device. Therefore this version of design of the device can be considered as **the manipulation of the plasma method**.

Fig 6 is a plan of one more design version. It is made as an inner frame 15 and outer frame 16, the space between them is filled with some gas 17. Three electrodes 18, 19 and 20 are connected to the three-phase pulsed generator 21. **Consequent excitation of plasma layers by electrodes 18, 19 and 20 creates the wave of energy density.** Propagation of this wave can be directed both to center of the device and from the center of the device.

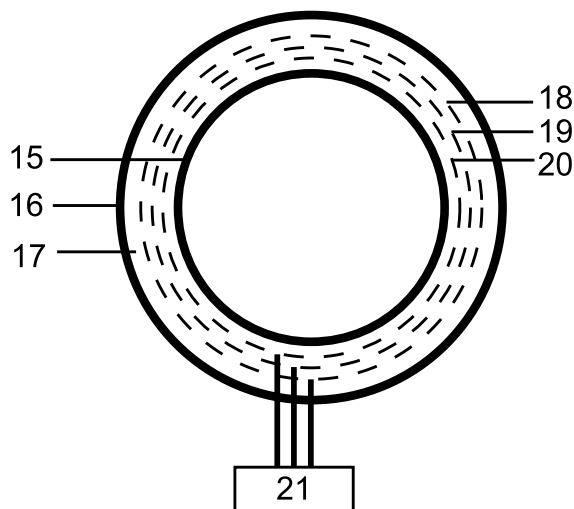


Fig. 6  
Wave in plasma

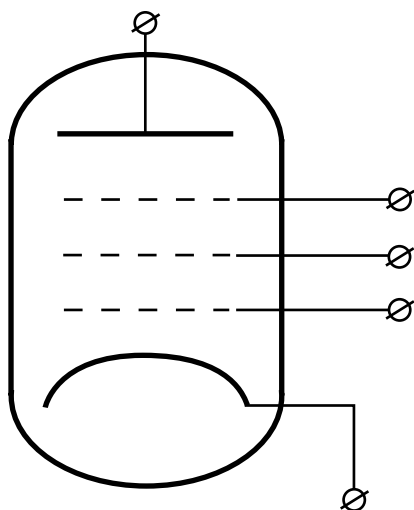


Fig. 7  
Schematic electric circuit

In Fig 7 there is a schematic electric diagram of the design.

**To conclude.** The work on time control has just started. We have clearly determined the main physical principles of operation of such devices, which can change the aether density in some given volume of space and thus influence temporal parameters of any physical process. The small experimental results today allow us to make real positive conclusion on availability of this method and on the possibility of its practical application in applied aspects. The first aspect is antigravitation propulsion technology and we are developing the methods to detect mass (weight) changes in the time control experiments to prove this applied possibility. Another area is medical applications of the changes in the aether density

Russian Federation patent claim #2003110067 was filled April 9, 2003. At present time we are interested in marketing for this technology as well as in search of additional investment and partners.

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# Aetherodynamics as a New Field of Physics

## Theory and Experiments

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A crisis exists these days both in Natural science on the whole, and, in its basis, i.e. physics. This situation is caused by fundamental errors in the methodology of its theory. The postulate method and predominance of mathematics above physical sense can be also considered as the reasons for this. Crisis situation has also taken place in the past and the way out was always to use a deeper level of matter organization than the accepted one.

A large amount of material on elementary particles of matter is collected in physics. It was discovered that all these particles can be transformed in each other. Besides that, there was discovered the ability of vacuum to create such particles at strong electromagnetic fields. In this connection it becomes clear that all these particles and vacuum have a common building material, i.e. a physical medium which fills all the world space. This medium was renamed **aether** and the element of the medium was renamed **amer**.

The worked out methodology of aetherodynamics allowed determining that aether is a usual viscous coercible gas for which all laws of usual dynamics of gases are valid. It has allowed to determine its characteristics for near-Earth space and then to describe the structures of primary stable elementary particles (i.e. proton, neutron, electron, photon, atomic nuclei, atoms and some molecules) as well as physical essence of general fundamental interactions (i.e. strong and weak

nuclear interactions, electromagnetic and gravitational interactions) and some physical phenomena.

Also developed was the model of aether circulation in the Universe within the limits of perpetually existent matter, usual Euclidean space, and evenly flowing time. Formation and decay of matter, formation and decay of celestial bodies and galaxies as well as functional classification of galaxies are also included there.

To confirm some theses the author and his research team conducted several experiments mainly on electromagnetism that gave positive results. The research was conducted on testing of the presence of aether wind. These research works have confirmed the results obtained by D. Miller in 1925.



Report by Vladimir A. Atsukovsky

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# Electromagnetic Gravitational Interaction

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In the article some mechanisms of electromagnetic gravitational interaction will be considered in the view of the Unified Theory of Field, Space and Time. See the complete description of The Unified Theory of Field, Space and Time at <http://uic.nnov.ru/~kovy2>; <http://uft.h1.ru> or in the book [1] which has the same title.

First of all, let us consider the structure of Space-Time where the radiation propagates. In our World gravitation is the unique substance which exists everywhere and gets over any obstacles. There are no known methods of insulation of gravitational field in modern science. It is impossible to imagine space and gravitation separately. Gravitation exists everywhere where there is some space. The gravitational field created by all masses of our metagalaxy is the aether in which cosmic objects move and electromagnetic oscillations are propagated. The space surrounds us since the whole matter carries gravitational charge of only one sign. From astronomical research of cosmic space it follows that radius of metagalaxy is equal to the critical (gravitational radius) and hence gravitational potential is equal to  $c^2 \sim 10^{17} [m^2/c^2]$  in each point of space.

In our space the sum potential of the electric field is equal to zero. All bodies and space-time as a whole are electrically neutral. This assertion follows from two unique properties of gravitational space-time:

1. Values of electric charges of different signs of elementary particles are exactly equal.
2. There is an equal number of elementary particles which carry electric charges of different signs.

If electric potential is equal to zero in the given point of space then energy of alternating magnetic field passes entirely to the electric field and radiation gains the parameters of electromagnetic oscillations. However electric potential of positive and negative signs can prove its properties at the simultaneous charging of different local spatial regions. In the electric field the character of radiation differs from that one which is observed in ideal gravitational space-time (without electric potential).



In the presence of electric potential some part of magnetic energy is spent to create gravitational alternating field. Radiant energy is absorbed. Electrically charged spatial regions are perceived by us as filled with a strong absorbing substance. At the same time if the potential of the electric field can be compared to the potential of the gravitational field then spreading of radiation becomes impossible.

Change of both electric and gravitational field results in the creation of a magnetic field in the region of space-time which has a dual electrogravitational nature. Change in the magnetic field results in the creation of both electric and gravitational fields. The amplitude of electromagnetic and magnetogravitational constituents of the unified electromagnetic gravitational oscillations depends on field potential of opposite nature. The electromagnetic constituent is determined by gravitational potential and the magnetogravitational one is determined by electric potential. Transference of gravitational masses of matter in electrogravitational field-aether causes the creation of the proper magnetic field. Coming from the direction of magnetic field some force influences upon the moving electrically neutral masses. This force is similar to Lorentz force.

Electromagnetic gravitational converter designed according to the Searl Effect (Fig 1) visually demonstrates the mechanisms of electromagnetic gravitational interaction. A detailed description of the experiment is presented in the article [2] by Vladimir Roshchin and Sergey Godin (see <http://www.n-t.org/tp/ts/dms.htm>).

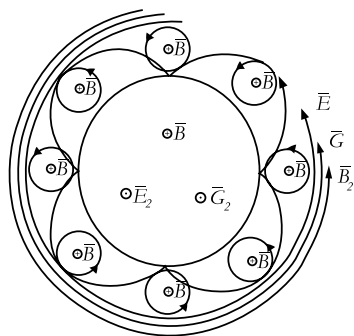


The device consists of a cylindrical stator of about 1 meter in diameter which is surrounded by 24 cylindrical rollers. Stator and rollers are made of magnetic material and they are magnetically linked (there is no contact between them). Vector of the magnetic field of the stator and rollers is vertically oriented along the axis of the cylinder but it has opposite direction. Rollers are mounted on the movable separator which circles round the stator. Each roller rotates on its axis in the same direction. The weight of the device is 350 kg. During rest, the device is electrically neutral and has proper gravitational charge, inertial mass, magnetostatic field of the stator and rollers.

On rotating of the magnetic system the following effects were observed:

- Depending on the frequency (up to 35%) the weight of the device was decreased.
- At a frequency of 550 rpm there is a spontaneous acceleration of the system and turns of the rotor abruptly increase (in quadratic dependence). To stabilize the mode it had to take off the excess energy to active load (up to 7 kWtt) by means of electromagnetic transducers.
- Magnetic field was distributed in a room as concentric surfaces of 5-8 cm thickness and 50-60 cm period. Depending on speed of rotation of the magnetic system there was a fixed temperature decrease from 0 to 8° within the regions of space which were curved by magnetic field.
- The glowing (corona discharge) appeared around the working converter.

Appearance of all mentioned effects is caused by the simultaneous presence of electric, magnetic and gravitational fields in the area of the converter.



**Fig. 1**

Electromagnetic gravitational converter

Because of the Searl Effect a very complicated configuration of electric, magnetic and gravitational

fields appears in the device. Rollers having their own field  $\mathbf{B}$  rotate around the stator which has its field  $\mathbf{B}$ . Cycloidal motion of numerous magnets which are built in the rollers causes change in the magnetic flux. EMF  $\mathbf{E}$  appears in the area of rotation of the rollers. EMF is directed along the perimeter around the device. The electric field creates stationary waves which are registered around the device as concentric electromagnetic gravitational walls. Magnetic rollers should be made non-conducting in such a way as to allow electric field penetrating inside. In the presence of the electric potential change of the magnetic flux causes appearance of gravitational field  $\mathbf{G}$ . This field is directed along the perimeter around the device. In the presence of electric potential the Lorenz force influences the gravitational masses of the rollers. These gravitational masses move in the external magnetic field of the stator. The Lorenz force is directed transversely to the velocity along the cycloid and in the direction of the field  $\mathbf{B}$ . The value of the Lorenz force depends on the electrical potential, magnetic intensity, mass of the rollers and their traverse speed. The electric potential in its turn depends on speed of rotation of rotor of the magnetic system. As a result the Lorenz force depends on speed according to square law. Rotating gravitational masses of the rollers generate magnetic field  $\mathbf{B}_2$ . Field  $\mathbf{B}_2$  generates derived fields  $\mathbf{E}_2$  and  $\mathbf{G}_2$  etc.

Spontaneous acceleration of the system does not depend on the direction of rotation. Directions of fields and forces change at change of the direction of rotation that corresponds to acceleration in the opposite direction. When the direction of rotation is changed the weight of the device changes. When rotation is in one direction the field  $\mathbf{G}_2$  is directed upwards (decrease of weight), when rotation is in another direction, it is directed downwards (increase of weight). In the presence of electrical potential many other interesting but still unstudied phenomena are observed (for example, curve of space, change of speed of time-flow, changes of ambient temperature...). Magneto gravitational converter transforms gravitational energy of space-time into energy of electric field which in its turn is transformed into mechanical energy of the rotating magnetic system and electric energy of the load. Energy resources of the future are not coal and gas reserves or nuclear power. They are in the inexhaustible energy of gravitational aether of our space-time.

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# Medium For Existing of Matter in Nature

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By medium for existing of matter in Nature we understand physical vacuum which is a category determining all spheres of matter “life” (from particles of microworld to gravitational interactions in the Universe). Matter can not exist without this medium. Thus a question emerges, viz: how physical science can be developed without taking this fundamental aspect into consideration?

According to the Einstein postulate, in a void light always propagates with limited speed, which does not depend on the motion mode of a radiating body. It is a statement of deep physical sense which lies in the fact that only some physical medium can possess such a property. Indeed, if velocity of light, which was radiated by a body, further does not depend on speed of this body then it is possible only in a certain medium. For example, in air sound propagates with a certain speed which does not depend on the speed of the source and is determined only by density and volume elasticity of air. Thus, according to the Einstein postulate, there is a physical medium instead of void and velocity of light depends on the parameters of this medium (as is well known, velocity of light is equal to the square root from the product of inverse values of electrical and magnetic conductivity of vacuum).

The author of this article made an attempt to research this physical medium [1]. The author used a well-known experimental fact that at interaction of a photon with a charged real particle this photon transforms to electron-positron pair. Besides, it was taken into consideration that photon is an electromagnetic phenomenon. The research allows the following conclusion: the medium named in physics as vacuum (before the XX century it was called aether) is created by electric dipoles from (+) and (-) elementary charges. These dipoles are surrounded by magnetic (mass) continuum. There were determined dipole intervals, elasticity of decompression and ultimate strength of this interval. What does this model of medium mean?

1. This model is a physical validating for the “birth” of electron-positron pair at energy which is necessary to break dipole and create the “clot” of mass of

these two particles. A certain model for the “birth” of mass must exist. It is not clear as yet but can be represented as a vortex of magnetic continuum inside the charge shell of electron and positron.

2. Let us suggest that values of (+) and (-) charges differ at  $7.848981 \times 10^{41}$  Coulomb, then this difference is sufficient for the medium to be a source of gravitation and inertia. According to Newton’s law of gravity, a weak electric charge of medium (all material bodies exist in this medium) causes all bodies to attract one another (under Coulomb’s law). On the other hand, weak medium charge of a like sign creates repulsive forces which manifest themselves in the form of the expanding Universe. Thus it becomes clear the amazing uniformity of gravity and forces of negative pressure for the Universe. The mentioned difference of values of (+) and (-) charges of medium dipoles is not used as arbitrary parameter but it logically follows from its electrical structure [2].

3. Hypothesis of nature of gravitation is confirmed by calculations of the deflection angle of electric waves by the Sun. Calculated angle differs from the experimental value only in the fifth sign, which depends on the accuracy of several physical values used in calculation formula. There is practically an absolute coincidence with Einstein’s theory. The difference is that it is a concept of space and time (i.e. geometry) which prevails in the general theory of relativity while in the nature of gravitation physical basing is used. Velocity of light is unstable and determined by medium state which depends on electric, magnetic and gravitational potentials.

4. The existence of “black holes” relates to medium structure and nature of gravitation. At the edge of “black holes” the ultimate acceleration from gravity is realized. It causes breakdown of connections in electric dipoles of medium, creation of matter and antimatter (the so called “evaporation” of black holes which was theoretically predicted by E. Hoking, England). However at the border of a black hole the velocity of light is equal to zero since its propagation



medium disappears. According to Einstein's theory it is such a deceleration of time that electromagnetic oscillations gain zero frequency.

5. Naturally the medium is a carrier of all types of electromagnetic radiation, beginning at stationary electric voltage and ending with super-high-frequency "photons", which can be determined not as electromagnetic but as magnetoelectric phenomenon. In the latter case magnetic continuum of medium has a crucial importance since it determines very small degrees of magnetoelectric disturbance. These degrees are thousands of times less than those of a hydrogen atom. It is reasonable that such small degrees creates illusion that a photon possesses properties of particles.

6. Medium structure directly leads to the notions of Quantum Mechanics, beginning at quantification of electronic "orbits" in atoms. This medium determines the "allowed" spots for electrons to be placed around a nucleus. Thus medium is a necessary place for the existence of all matter or matter of the Universe. The so called Compton length of electron wave is one of the validations of this statement. It is directly calculated to a high accuracy according to electric structure of vacuum.

7. Thus Plank's constant is not a mysterious "quantum of action", on the contrary it is entirely determined by medium parameters. Thereby the crisis (which conventional physics is accused of) can be logically overcome by the introduction of medium which is capable to take radiation in electromagnetic region only by quanta. Plank's constant is always presented at all quantum approaches. It is additional evidence in favor of the necessity to take into account the medium as natural place for existence of all the matter in Nature.

8. It is still a question what processes take place in the centers of galaxies. The observations show that the centers of galaxies create star matter. They often flow out the centers and settle themselves at approximately the same plane. It is an evidence of the fact that centers of galaxies quickly rotate and the favorable conditions for stars to reject matter are created. Similarly planetary systems are created around the rotating stars. It is thought that centers of galaxies are gigantic black holes. In the context of the concept of medium for matter existence it can be set up a hypothesis that being at some special state the medium creates stellar systems, i.e. galaxies.

9. Astrophysicists more and more trend to accept the existence of unknown "dark" matter, which occupies approximately 70% of all matter. It is said that due to antigravitation property this dark matter is responsible for the expansion of the Universe. Hypothesis on the nature of gravitation gives the affirmative replies to such suggestions as: expansion of the Universe is caused by weak electric charge of the medium and distributed mass of magnetic continuum is the very dark matter.

10. All elementary particles (electrons, positrons, mesons, protons, neutrons etc.) are in the medium and interact with it. In the case of electrons and positrons this interaction causes the great extension of dipoles of medium which directly adjoins to borders of particles. This extension helps photons to break the particles. In case of protons, there is such a breakdown of the medium at their borders that protons turn to be dressed in "coats" of virtual electrons and positrons. And medium is shown to be in entire state only when reaching the first Bohr orbit. This interaction of the medium and particles leads to the factors which determine the life time of some of them. Thus life time of a neutron is up to 30 minutes depending on the state which it has while leaving the nucleus. For mesons "the tearing" Coulomb forces, which exist between the medium and particles, are very powerful that makes the life time of mesons very short. However if the particles moves with a high speed relatively to the medium, then these forces noticeably decrease and if the speeds of motion is close to velocity of light then these forces become very small. The life time of such particles noticeably increases. In Einstein's theory it is said about "deceleration" of time. Finally the life time of particles is determined by the inner steadiness and outer influence of the medium. Protons have fantastic binding energy and they cause such great external destructive effect that their life time becomes immense.

11. When particles move in medium with high speeds, there is a concentration of magnetic continuum which is recognized as increase of mass of particles at increase of their speed. Evidently, we can continue the list of physical phenomena which relate to the presence of medium for existing of matter in Nature. However it seems to be enough to admit that medium (physical vacuum, aether) is of a great importance for the very existence of the Universe and for the processes which take place there. "Mechanism" of gravitation and inertia has a special importance since

it is the only thing which can make clear the real mechanism of Nature. It is possible that the methodology, which is accepted in physics, is necessary for more accurate description of phenomena but it is not enough for understanding of the nature of “space” and matter. Research of the medium for existing of matter will be able to meet the conditions sufficiency.

The understanding of vacuum structure, which is created by electric lattice from charge dipoles, surrounded with magnetic continuum, gives an opportunity to control the forces of gravitation and inertia. The medium of vacuum can be influenced by:

1. The radiation which has frequencies coming to the frequency from point #11 of the list of parameters.
2. Electric voltages which exist in vacuum (it is not

very promising because of real matter breakdown).

3. Magnetic intensities (magnetic flux density). It is the most promising influence method (1-10 Tesla is enough to compensate terrestrial gravity).

4. Transformations of low accelerations to high accelerations of impact type.

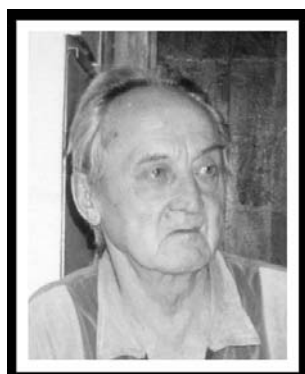
Potential electric and magnetic energy is immense in vacuum medium. Reasoning from energy of one dipole, which is equal to  $1.6 \times 10^{-13}$  Joule, we will derive the value of electric energy equal to about  $10^{+31}$  Joule per one cubic meter of the medium that is equivalent to mass annihilation of  $10^{+15}$  kg!

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## Spartak M. Polyakov

(09 January, 1931 – 04 June, 2003)

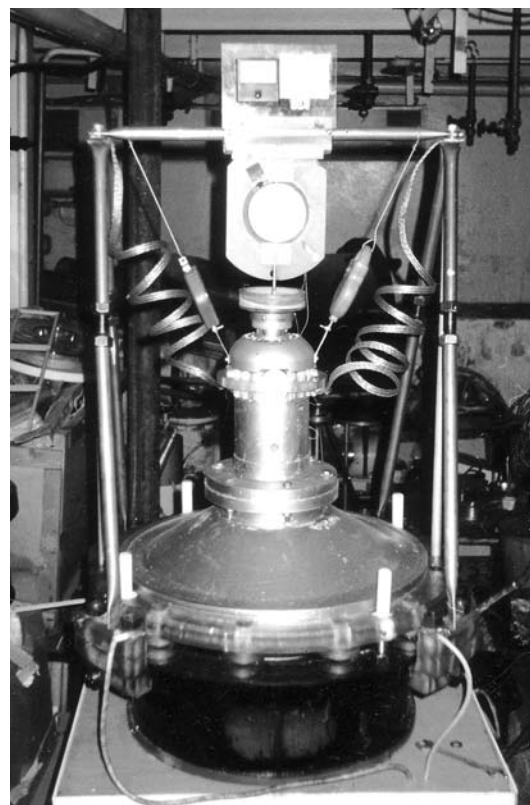


Spartak M. Polyakov, a legendary physicist-experimentalist, known for his research in the field of gravitation, has died. Polyakov was the author of more than 50 research works, among them “Introduction into experimental gravitonics». Polyakov was the creator of the new model of photon. He also conducted numerous research in the field of electrodynamics, gravitational phenomena and superlight connection.

Spartak M. Polyakov graduated from Kishinev State University with degree in “General Physics”. For many years he worked at the top secret military engineering department “Istok” (Russia).

Polyakov’s alternative physical theory allows explaining such phenomena as magnetostriction and optical magnetization. The basic postulate of this theory states that the speed of propagation of gravitational waves is dozens of times faster than velocity of light regarded by the traditional science as the limit. In his experiments Polyakov demonstrated such methods of generation of gravitational waves as precession of gyroscope and remagnetization of ferromagnetic.

While working for “Istok”, Polyakov designed on his own a device which is possibly the first gravitational motor in history. Total specific thrust produced by rotation of gravitating mass comes to 2.5 kg/kWt. This index is close to that produced by the engines of modern helicopters, which is equal to 8 kg/kWt. Practical application and further development of Polyakov’s ideas can provide humanity with new kinds of communication, gravitational engines and free energy devices.







## Principle of Operation and Experimental Data

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Adams' motor-generator represents the type of devices which use, as their creators claim, so-called "free energy". The term "Zero point energy" is also used in some sources [1, 2]. Due to quanta-mechanical fluctuations, this energy exists even at zero temperature. Adams' motor-generator belongs to the group of Switch reluctance motors [3]. Robert Adams, **former Chairman of the Institute of Electrical Electronics Engineers, USA (New Zealand section)**, designed this machine in the late sixties of 20<sup>th</sup> century. Similarly to all the devices utilizing free energy (referred to in some sources as "overunity devices"), Adams' device remains practically unknown to the general public. **The device is rather simple to assembled even at home, which I experimentally proved. However, it is necessary to be very careful while choosing the model parameters. As to the latter I have managed to collect quite a big number of instructions from existing sources; the summary of these instructions is presented below in this article. Based on these instructions, a low-power model can be assembled even without a mathematical analysis and modeling of electromagnetic field. Such model would certainly facilitate optimization of the device.**

**Adams' motor is most frequently a DC machine;** however, it can also use an AC source through a rectifier. In the latter case only the adjustment of the device and its control system can be provided.

*Editorial: We disagree with some assertions of the author; however this article is of great interest.*

My experiments on my own model do not yet allow me to make an unambiguously positive conclusion concerning the possibility to generate excessive energy. Experiments with my new control system designed on the base of AVR controller AT90s2313-10PI (it is

produced by Atmel company (<http://www.atmel.com>) will allow to be more specific. Below there is a general analysis of the motor principle of operation and a number of recommendations concerning the construction and technology. I do not propose to take this as compulsory rules to follow; other technical solutions are possible.

Basing on the principle described in this article, R. Adams (the link to his articles is available at: <http://www.aethmogen.com/wri/intro.shtml>) created a few DC motor-generators which operate on permanent magnets. Some of them, according to information found on the Internet, have manifested 690% electrical efficiency and 620% mechanical efficiency. These devices operate at room temperature without overheating. My device has shown between 1 and 3 degrees overheating after an hour of functioning. However, it is easy to prove that such overheating is predictable for an average current of 0.15 A in coils of 35 mm long and 25 mm in cross sectional diameter. I have not been able to prove the data published on the Internet concerning the Adams motor capability to operate when the stator temperature is a few degrees lower than that of the environment. The temperature of the coil and of the power transistor is a good indicator of correctness of the circuit set-up and of functioning of the control circuit. There were cases when transistor and coil were noticeably heated after adjustment. Usually this was explained by a bad choice of points of transistor switching or by too extensive current impulses in the stator (which must amount to approximately 25% of period length). After the required adjustment the motor continued to operate almost without overheating.

Adams' motor was first mentioned in Australian Nexus Magazine in 1992. Later, Harold Aspden (Britain) proposed a slightly improved version of the motor and received Great Britain patent No. 282708 [4], which strongly reminds of the original version published by the above magazine. **Adams' device** represents an electrical motor and/or generator consisting of a rotor

with radially directed permanent magnets and of a stator also constructed with a few radially directed and periodically magnetized cores with winding. (Fig. 1). In some models axial orientation of magnets and coils are also used.

Permanently magnetized poles of rotor can include any number of poles, even an odd number. Analogous poles of the magnets (all N poles or all S poles) are directed outside. A version with alternating poles is also possible; such model allows the torque to increase. In this case, after passing a rotor pole the stator is demagnetized by the current impulse and begins to be attracted by the magnet of different polarity. This circuit requires a more complicated control; on the other hand, it manifested rather good results in certain models.

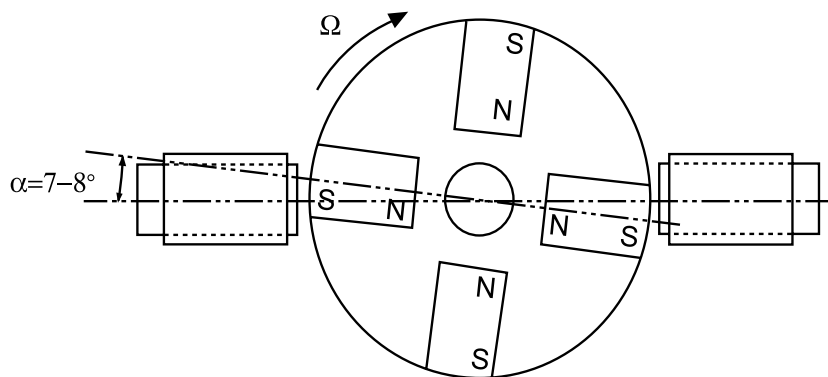


Fig. 1

Poles with winding placed on the rotor are radially oriented in order to obtain a supply of energy emerging as a result of the influence of counter emf from the rotor poles. Steel or iron cores are used for the poles of the stator with winding. It is also possible to use other materials, at that the core must have high magnetic inductivity and low level of magnetization reversal losses. The stator winding consists of a few hundred turns. The current induced by the magnet in this winding will have the polarity which will cause repulsion of the magnet. Since the electromagnetic state of stator changes quite significantly and quite fast, then the stator core can be considered to be the most crucial element of the device. Ignoring this fact was one of the most frequent mistakes made by those who tried to reproduce Adams motor.

The current induced in the stator is the function of:

- field size,
- number of winding turns,
- speed of flux changes.

Resultant parameters of this device cause each pole to

be attracted or repulsed by stator poles when the rotor is in certain position in case when the rotor is unbalanced. To achieve this effect it is required to switch the input current in control coils after the signal from sensor of rotor position. R. Adams used a mechanical switch as a sensor. My device and a number of other devices use the signal from two Hall sensors. However, according to experimenters' information, better results are achieved if a position optical sensor is used.

Time of switching of impulses is determined by the size of the motor itself, i.e. the speed of motor rotation, location of rotor magnets towards the stator windings and the distance the rotor magnets pass while moving by the poles with stator winding.

It is necessary to take into account that any part of this motor can be modeled based on the existing electromagnetic theory and no part of the motor is in conflict with any laws of electromagnetism. There are so many ways to construct Adams' motor that any version may be considered to be correct.

One can say that the frequently pulsating electromagnetic process in the stator core is what allows Adams' device to function as a kind of diode which borrows energy from the field

of permanent magnet but then does not return that energy in full.

5 stages can be defined in the periodical process which takes place in stator:

1. The magnet is attracted to the stator core. The permanent magnet is attracted to the iron core of the stator with winding. While doing so no consumption of electrical current takes place. It is as if kinetic energy is borrowed from an internal ferrite magnetic source and is supposed to be returned into the stator.
2. Stator core is magnetized. During the period when the magnet is positioned in front of stator core they both comprise a single magnetic conductor with an air gap and the stator core becomes an extension of the magnet side it faces. It is usually supposed that the energy "borrowed" on the first stage is getting back now.
3. Stator core is demagnetized. When the stator core becomes rotor magnet extension, the circuit closes and current impulse gets to stator windings. I have seen the instructions saying that the angle between

stator axles and rotor magnet must amount to 7-8 degrees as shown in Fig. 1. However, my model made it clear that at increase of speed of rotation it is necessary to start the coil a little earlier, when the magnet axle has not reached the stator axle. Probably this applies to the circuit with a Hall sensor only and if an optical switching is used the making angle will be different.

Magnetic field of this current acts to compensate magnetization of the stator, which is caused by the field of rotor magnet. Consequently, the summed current significantly compensates attractive force between rotor and stator and the rotor can freely rotate by using the inertia obtained at stage 1. This process is characterized by the fact that this current impulse is amplified by the current induced in the stator winding by rotor magnet which, in accordance with Lenz law (1834), counteracts the power which induced it. Consequently, kinetic energy obtained as a result of attraction of the rotor to the stator at stage 1 is transformed into electrical demagnetizing impulse in stator winding during the period when the rotor and stator directions are congruent. This is the unique overunity characteristic of this model. However it is obvious that instead of returning this energy the motor transforms it into electromagnetic demagnetizing field.

4. Restoration: when the rotor is removed from the stator attraction zone the latter loses energy and returns to its initial demagnetized state. Decreasing electromagnetic field creates a current wave of reverse polarity which can be stored in the capacitor.

5. Reiteration of the process: This periodical process is renewed as described in stage 1 during the next magnetization of the stator, excluding the fact that emf preliminarily stored in the capacitor, on term of presence of suitable electrical circuit, can be used for facilitating stator demagnetization or even used to supply the load.

It may be briefly summarized that the frequently pulsating electromagnetic process in the stator core is what allows Adams device to function as a kind of diode which borrows energy from the field of the permanent magnet but does not return that energy in full. The important characteristic of such motors is that the stator windings are used for demagnetizing and not for magnetizing as it could seem from the first sight.

It is noteworthy that there is a small pause between attraction to the stator and repulsion from the stator. The effect of attraction to the core takes place a split second before the repulsion effect manifests clearly. This pause being the reason of electromagnetic asymmetry

creates conditions necessary for achieving overunity effect. If the attraction to the core and repulsion by means of Lenz currents were taking place simultaneously and with the same power there would not be any overunity characteristics. That is why the rotor must be as lightweight as possible. From this point of view, T. Harwood's model is the most lightweight of the known models. In Harwood's device the magnets are mounted between two CD disks fixed on the shaft by means of plastic washers and glue. My model is heavier, which can be considered as one of its disadvantages.

The principle of operation of Adams' motor is based on the balance, which creates the electromagnetic asymmetry. To get the motor to operate the magnet must be attracted to the stator core which must have a smaller cross-section area in order to create attraction without any significant repulsion effect from the stator windings mentioned above. When stator and rotor axles are congruent the Lenz induced current must be sufficient for compensating the natural attraction of the magnet to the stator core. Consequently, stator windings must have enough turns for demagnetizing effect, but not to the extent that this effect fully manifests before the rotor reaches the stator axle when Lenz current has its maximal value.

During my experiments at 12 V voltage and on using two independently controlled stator coils the speed of rotation reached 3400 rpm. Please note that while reproducing such device it is necessary to take certain measures in order to ensure safety in case of possible breakdown. **The magnet disconnected from the rotor may be dangerous!**

Technological recommendations are as follows:

1. The device must be low power. It is better not to try to begin with a motor functioning in kilowatt range. This is feasible only on condition of having all necessary technological documentation which is not available at the moment.
2. The preferable voltage for the first model is 12 V. If the voltage is less the speed of rotation is too slow for indicating the expected characteristics of the device.
3. The best magnets are ferrite ones with dimensions 4x4x5 (where 5 is the magnet length). The practice has shown that at 12 V voltage neodymium-iron-boric (NdFeB) magnets cause a jerky rotation of the rotor.
4. The side of the stator core facing the rotor must



## Control circuit with hall sensors

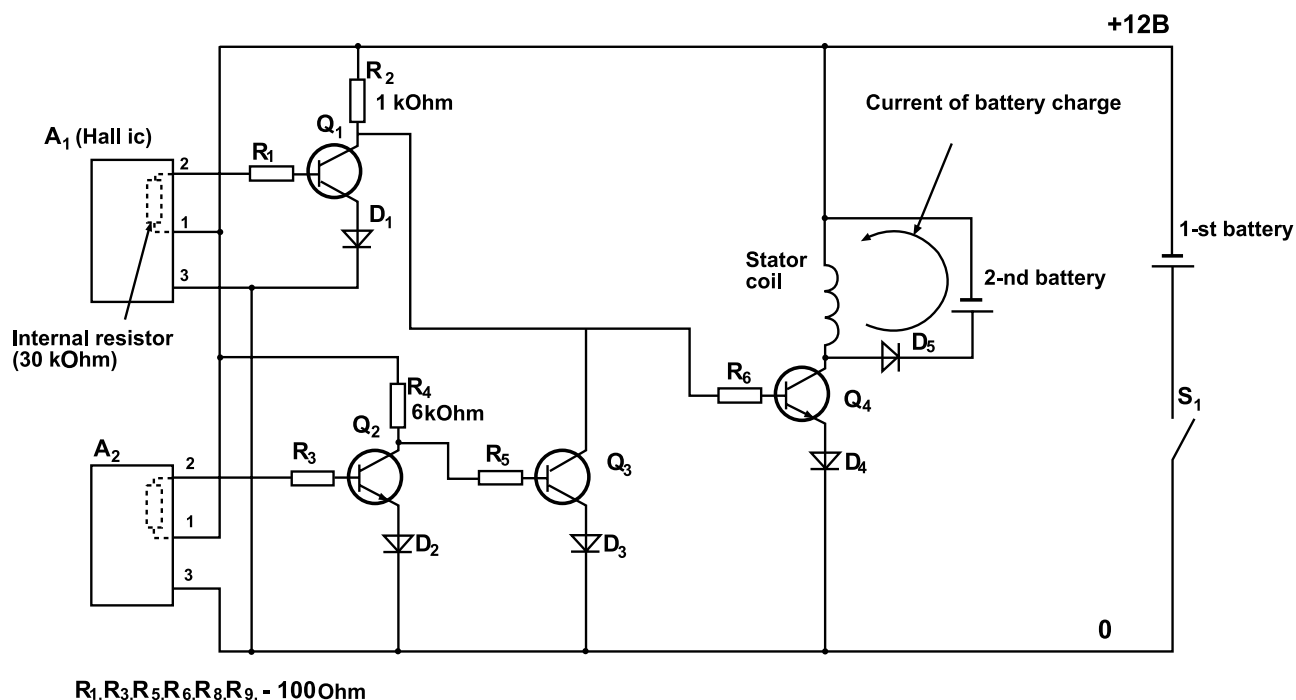
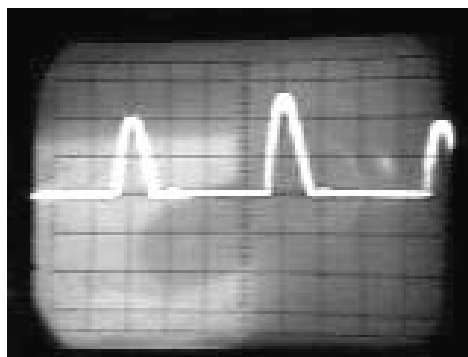


Fig. 2

have the size which is 4 times smaller than the corresponding side of the magnet. If cross-section area of the stator is larger, a bigger part of magnet field comes to the stator core when their axes coincide and thus there is nothing to induce Lenz' currents in the stator windings. It is a common point of view that it is necessary to try to minimize the volume of a



device and to obtain the maximum efficiency at minimal material expense. In practice, it has always been the goal while designing electrical machines to decrease losses in stator  $I^2R$ . As for the Adams motor, it requires not only the use of disproportionate magnets but also stator windings with disproportionate number of turns specially designed to obtain maximum Lenz' currents that is achieved by hundred of turns of winding.

5. It is necessary to define approximately the effective zone of the magnet field. If practically applicable magnet field is equal to, for example, 8 cm, and the stator has a 10 cm long winding, then more than 20% of turns will not be efficiently crossed by magnetic force lines and will only create an excessive mass of the device. To define the degree of effective action of the magnet we can put a

paperclip on the table and move it gradually in direction of the magnet until the paperclip is attracted to it. Actually if we take into account friction losses then the magnet influence zone will be a little larger. That is why the stator winding in the axle direction can be 10% larger than that in this experiment. The description of this test has been found on Tim Harwood's website

(<http://www.geocities.com/theadamsmotor/cdmotor.html>).

6. The air gap clearance between the stator and the rotor must not exceed 1.5 mm.

7. Use as little metal in the device as possible. It is preferable that the metal is used in the core and stator windings only.

In order to increase the efficiency of this motor, it is necessary to build it in a manner, which allows removing the counter emf from the stator windings. To do that, this emf may be taken off and stored in the capacitor. The article published by Nexus magazine and Great Britain patent No. 282708 consider special generator windings; however, no sufficiently detailed data on operating rules are provided. Michael Smith (Australia, <http://www.Fortunecity.com/greenfield/bp/16/content1.htm>) has unequivocally informed me in one of his letters that

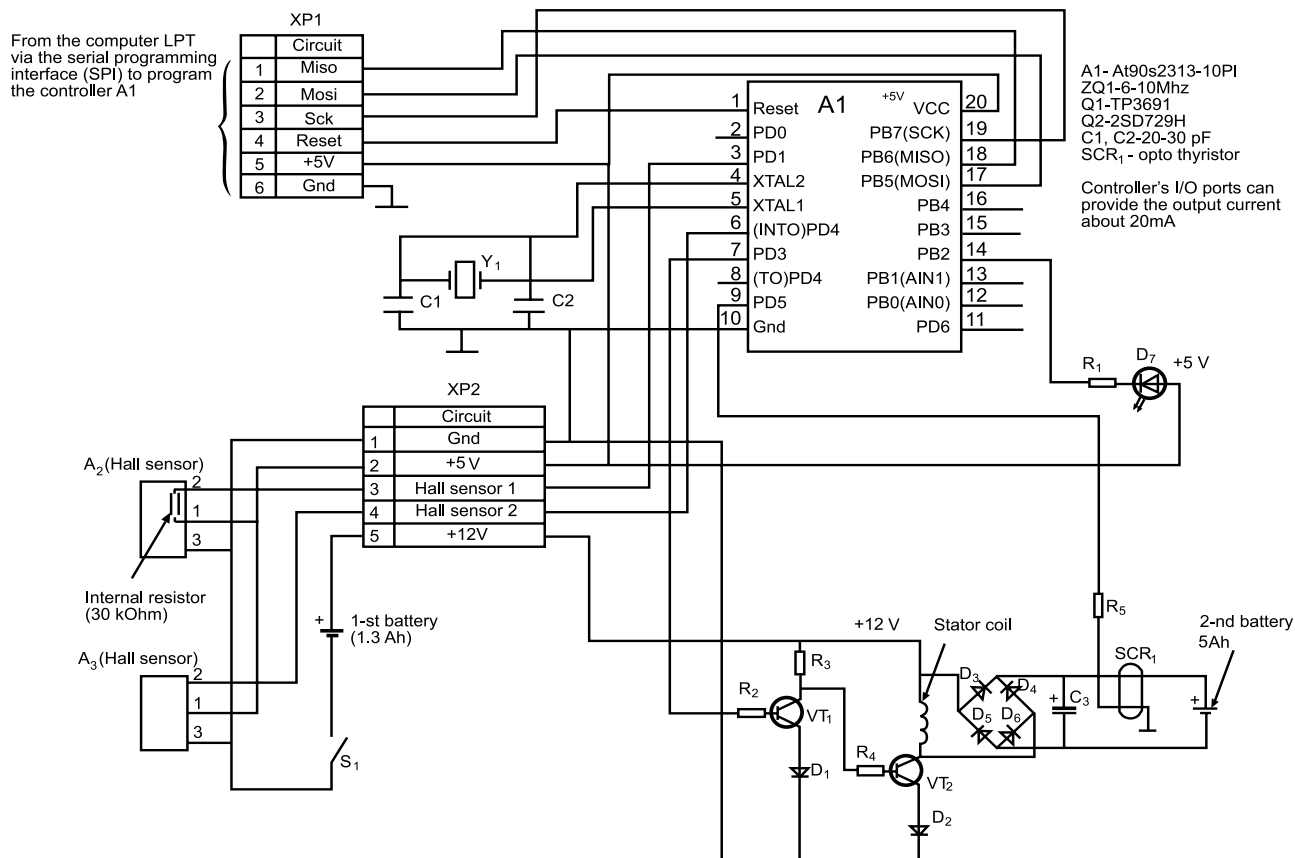


Fig. 3

he has not achieved generation of excessive energy in such a system. During his experiments a two-battery circuit proved to be more effective. In this circuit, during a part of periodical process the energy is stored in the capacitor and then a command is transferred to a thyristor, which discharges it into the second battery. At that capacity, the second battery must be no less than 4 times more than the capacity of the first one. Otherwise the excessive energy does not have enough time to be stored during the discharge. I have also managed to provide the charge of the second battery, but the control circuit has not been assembled fully yet, as it is shown below in Fig. 4. Better results are expected when its final adjustments together with AT90s2313 controller program have been made.

I managed to start my first model of the motor in April, 2002. Afterwards, I spent approximately six months increasing its rotational speed from 750 to 3200-3400 rpm, decreasing vibrations and improving control

circuit. In order to achieve a better rotor balance I had to re-construct it twice. It is very important to align the axes of the bearings with maximum precision; otherwise a considerable decelerating torque will manifest. The shaft penetrates the lower moving base. It is possible to rotate the base at a small angle for the precise alignment of axes and then to fix it with screws and nuts.

*In order to increase the efficiency of this motor, it is necessary to build it in a manner, which allows removing the counter emf from the stator windings.*

In order to decrease aerodynamic losses, two veneer parts are mounted between the magnets. Thus I managed to increase the speed, although the rotor weight has also been increased.

Stator cores are made of plates taken from a disassembled radio transformer. Tim Harwood used nails with winding, however, my own results with such core proved to be poor. Dimensions of the core are 10x11x50 mm.

The type of power source is also important. First, I connected a 9 Volt accumulator of "Krona" type in series

with three metal-hydride 1.2 V accumulators. The speed of rotation did not exceed 1500 rpm. But when I used a lead/acid accumulator with 1.3 Ah capacity, the speed increased to 2600 rpm if there was one coil on the stator.

Four magnets mounted on the rotor have the dimensions of 20x20x35 mm and are fixed on a 105 mm glass fiber laminate disk. The current impulses proved to be too wide, by up to 40%. In order to make them shorter (down to 25-30%), I had to use the control circuit (Fig. 2) with two Hall sensors. At the signal from the first sensor the stator current is started, the second sensor switches it off. Many experimenters used a timer to control the impulse length while working with Adams' motor that is more practical since impulses are supposed to be wider during the start. I took this factor into account while designing the controller circuit. Current impulses are shown in Fig. 3. Their fronts are supposed to be shorter; it is probable that the coil has more inductivity than necessary. The impulses amplitudes are slightly different which is explained both by the difference in volume of induction of the magnets and by difficulty in achieving similar air gaps while working at home.

I have provided the charge mode of the 2-nd battery at my two-battery design. After 75 minutes of operation of the device the source lost 0.17 Volt whereas the second battery was charged at 0.36 Volt. The capacity of both batteries in this experiment was equal. Besides after such charging the second battery started to discharge quickly. The circuit where stator current charges the battery directly has to be considered ineffectual (see Fig. 1). To evaluate the charge, which is gained in non-hermetic accumulators, the density of electrolyte can be measured.

To obtain a more uniform torque I added the second stator which is controlled independently. This required installing two more Hall sensors and an additional power transistor. The angle between axes of the coils amounts to 135 ( $180-90.2=135$ ) degrees. When the current is present in one part of the stator it is absent in another and vice versa. The speed has increased up to 3200-3400 rpm, and I deemed the further increasing of this characteristic unnecessary.

Increasing the number of circuit elements does not seem a good idea. Furthermore the adjustment process becomes more complicated. In order to improve the circuit of battery charge adding a timer circuit is required. Thus, I decided to use a controller circuit. A simple Basic program has been developed for AVR controllers. This

program operates in mode similar to transistor circuit, but its capability can be significantly increased due to the built-in processor timers. Today program improvement is the most efficient way to solve the task of generation of excess energy in this circuit.

This article is meant to elucidate the principles of operation of one of the simplest devices which pretend to become an "overunity device", "free energy machine", "perpetual motion machine", whatever you call it. Probably someone will try to create such motor-generators on their own. I hope that my article will serve as a guide and will help to avoid the mistakes made by many experimenters (including myself) before they managed to build their own model.

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# Prediction and Experiment on Field Transformation in the Model of Extended Space

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*A series of preliminary experiments on checking the possibility of generation of gravitational field at deceleration of charged massive particles in matter was carried out.*

## Introduction

In previous works [1-3] generalization of the special theory of relativity (STR) for the five-dimensional extended space with metric (+;-;-;-) was offered.

The model of extended space (ESM), combining electromagnetic and gravitational interactions, was made. For this, there was made (1+3)-dimensional space extension  $M(T; \vec{X})$  of Minkovsky to (1+4)-dimensional space  $G(T; \vec{X}, S)$ . Let us call it extended space. As the 5-th additional coordinate the value already existing in Minkovsky space, i.e, S interval

$$s^2 = (ct)^2 - x^2 - y^2 - z^2 \quad (1),$$

is used.

Let us note that attempts to combine gravitation and electromagnetism have a substantial background.

Modern approaches to this problem trace back to the work of F. Klein [10] in which he proved that classical Hamiltonian mechanics can be represented as optics in the space of a great number of dimensions.

Then T. Kaluza tried to generalize Einstein's theory of gravitation to include electromagnetism in this theory as well [11]. He proposed to consider (1+4)-dimensional space with metric depending on potentials of the electromagnetic field. Kaluza's idea was evolved by O. Klein [12], G. Mandel [13] and V. Fock, and the model they had created got the name of the Kaluza-Klein theory. They proved that the trajectory of a charged particle has the form of a geodesic line with zero-length in 5-dimensional space.

In his works on 5-optics Y. Rummer [15] proposed to assign action dimensionality to the new dimension and to consider it periodical with the period equal to Planck's constant. Note that rest mass of particles in all these constructions unlike the model of extended space evolved in the works [1-7] was considered a fixed value. Subsequent development of multidimensional theories is given in the monograph [16].

A separate approach is represented by multidimensional constructions in the theory of strings and superstrings [17].

Approach to construction of (1+4) dimensional space evolved in [18] is close to the proposed model of extended space. Here it is proposed to use mass (matter) as the 5-th coordinate. However, in this model, as its originators admit, it is impossible, for example, to create the energy-pulse tensor. There is no such disadvantage in the extended space model [8].

Mechanics of a material point [1, 2, 7] and electrodynamics [1, 8] were made in the introduced extended space. Besides Lienar-Vihert potentials [6, 19] corresponding to such a model were also considered and properties of solutions of Maxwell augmented system of equations which are in conformity with these potentials were analyzed there.

Gravitational effects in extended space, such as the second orbital velocity, red shift and light deflection [4, 20, 21] were considered. It is proved that the formulas received in the general theory of relativity for calculation of values of these effects can be received by an absolutely different method within the framework of the extended space model as well.

It was proved [6, 19] that the fields in the model of extended space can change their signs. Such change of field-intensity sign and, consequently, change of sign of Lorenz force can be associated with radiation reaction of these fields which occurs when charged particles move with acceleration.

Thus, on the one hand, it was proved in the model of extended space that it is possible to get certain formulas describing gravitational effects of the general theory of relativity [4,20] using the technique of turns in extended space. On the other hand, it was proved that the electromagnetic field can be a source of gravitational field [6, 19].

Besides, a moving massively charged particle under deceleration can create a variable gravitational field around itself [9, 6, 19]. The following experiment was offered for experimental check of the latter assumption. In this experiment probable occurrence of gravitational field at deceleration of relativistic electrons was determined by change of oscillations of a massive torsion pendulum.

### Experimental device

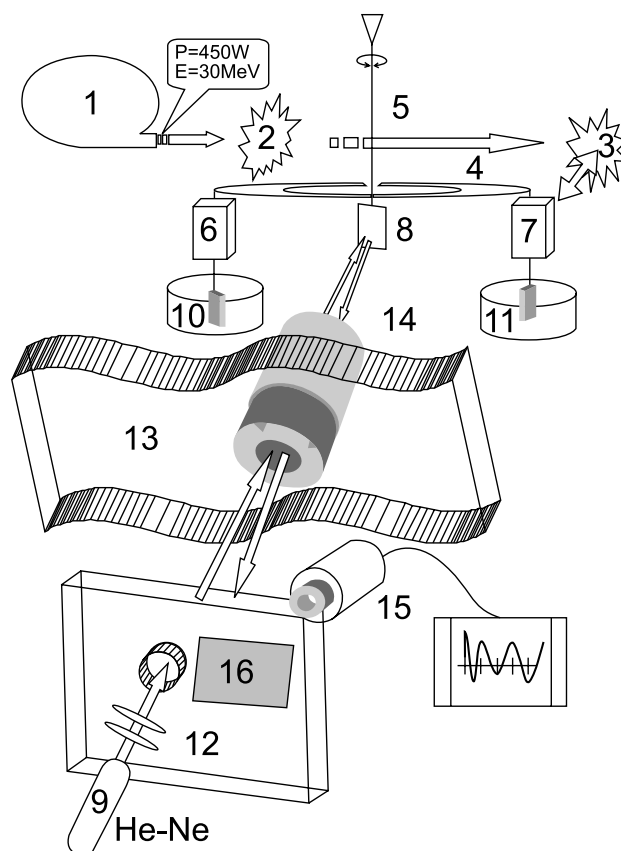
A narrow bunch of relativistic electrons from a microtron 1 (average power of the bunch is 450 Wt, electrons energy is 30 MeV) was directed to a brake target (position 2 or 3) made of wolfram exactly where deceleration of accelerated electrons took place.

A special torsion pendulum suspended on a vertical suspender 5 made of a springy metallic string with 1,8 mm diameter was placed near the brake target to register gravitational field which could probably appear at electrons deceleration. The length of the suspender made is 85 cm. The pendulum could rotate freely on the suspender only in horizontal plane.

The pendulum consisted of a light aluminum rod 4 (with a length of 120 cm) (with a length of 120 cm) on the ends of which massive loads 6 and 7 made of non-magnetic material were fixed. The weight of each load was equal to 4kg. In the center a pendulum was fastened to a vertical suspender 5 by a special mounting preventing slippage during turns. To reduce the influence of magnetic inducings the pendulum was grounded and additionally screened by metallic grid from all sides. The period of free oscillations of the pendulum made were about 40 s.

Rigidity of the pendulum vertical suspender could be changed by means of limiting the length of effectively operating part of the suspender. As a result, the period of oscillations could be continuously changed within the limits of 40 to 27 s.

To reduce the influence of mechanical noise and to introduce additional attenuation in pendulum oscillations two liquid dampers 10 and 11 located near the pendulum massive loads were used.



**Fig. 1**

Experimental device

1 – microtron, brake target made of wolfram – positions 2 or 3, 4 – rod, 5 – vertical suspender, 6 and 7 – massive loads, 8 – mirror, 9 – He-Ne laser, 10 and 11 – liquid dampers, 12 – optical system, 13 – concrete protection, 14 – observation channel, 15 – video system, 16 – screen.

Pendulum deflections were observed on a graduated screen by deflection of a laser beam reflected from a flat mirror 8. For this, the beam from a continuous He-Ne laser 9 through the optical system 12, which constricts the divergence angle of the laser beam, was directed to the mirror through a special narrow channel 14, located in concrete protection 13 around the microtron. By means of a video system 15 the beam reflected by the mirror was registered on the screen 16 located at a distance of 500 cm from the mirror. The video system allowed remote checking of vibrations of the laser spot and additionally enlarged the visual angle up to 12 times. The diameter of a focused laser beam on the screen was made 0.15 mm. The maximum turn angle of pendulum for the reflected beam to remain within the receiving channel was approximately 2 degrees. The accuracy of turn angle registration of the whole system was  $5 \times 10^{-4}$  degrees.

The pendulum was placed in such a way that one of the massive loads were close to the brake target at a distance

of about 20 cm. There was also an opportunity to move the brake target from one end of the pendulum (position 2) to the other (position 3). This allowed changing the place of deceleration of electron bunch at constant parameters of all unaccounted mechanical noise and magnetic inducing. Thus, direction of pendulum torsion was changed under probable exposure of occurring gravitational radiation.

Below there is a photo of the experimental plant (see also the colored photo on the cover page).

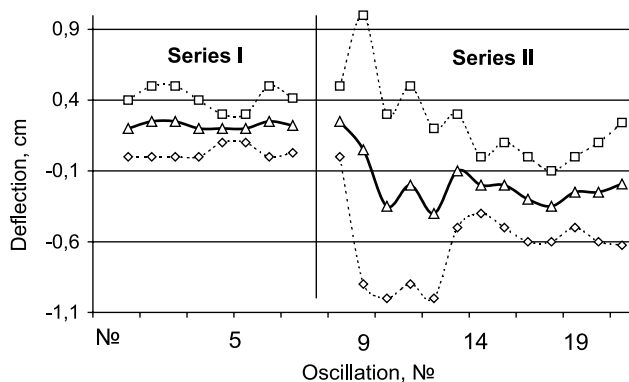


**Calibration Measurements**

To make measurements it was necessary to select optimal parameters of the pendulum (masses of loads, suspender rigidity and the value of oscillations attenuation). On the one hand, while carrying out the measurement it is desirable that the amplitude of pendulum oscillations should be as maximal as possible. On the other hand, the beam reflected from the mirror should not go outside the limits of observation, restricted by the diameter of the narrow observation channel in radiation protection around the accelerator. Besides, the typical operating time of the loaded accelerator usually is 10-15 minutes. Necessity to accumulate the minimum of sufficient statistical data within this time limited oscillations period and the time of setting of the pendulum in a new equilibrium position at outside influence. All these requirements were as far as possible taken into account during selection of the final setting parameters.

An example of free oscillations of the pendulum in the presence of minor mechanical vibrations caused by the operating of vacuum pumps is given in Fig 2, series I (the experiment took place on 31 May, 2001). The diagram shows the amplitude of laser beam oscillations on the screen 16 (upper and lower rows of values) depending on the number of oscillation. The laser beam is reflected from the mirror 8 which was fixed to the pendulum. The diagram also shows the current central equilibrium position (the central row) calculated by these amplitudes. Series I represents oscillations at influence

of the background mechanical noise. Series II represents the response of the pendulum to minor permanent outside force. Accuracy in determination of position of the center of a light spot was 0.1 mm.



**Fig. 2**

Calibration Measurement 31 May, 2001

Measurement was carried out with one liquid damper in service and with increased rigidity of suspender (it was made by means of limiting the effectively operating suspender length). The period of free oscillations in these series was 29 sec. In this case there were set continuous oscillations of the pendulum around the average value of balance of 2.2 mm with the average amplitude of values fluctuation of about 0.2 mm.

Air cooling of one of the massive loads by a very light continuous air flow was carried out to study response of the pendulum to a minor constant external force. In this case (Fig 2 Series II) noticeable change of pendulum oscillations already took place after 3-4 periods. Absolute setting of a new balance took place after 7-8 oscillations.

In the case of another series of calibration measurement (held on 7 June, 2001) both liquid dampers were used and rigidity of suspender was decreased. The period of free oscillations of pendulum was about 40 sec.

Addition of the second damper and decrease of suspender rigidity caused, on the one hand, increase amplitude of pendulum oscillations at influence of the external force and, on the other hand, in that case noticeable change of the equilibrium position of the pendulum took place after 1-2 oscillations.

Periodical checking of the invariability of initial central position of pendulum balance in time was also carried out. Thus, for example, in the series of measurement of 7 June 2001 measurement of equilibrium position was checked not only before the start of the main series of measurement, but also 2 hours after completion of the main works.



## Experimental Results and Their Analysis

Within the period from 17 May, 2001 to 7 June, 2001 7 measurement series were carried out at various operation modes of the accelerator and at various pendulum parameters.

A record of check of equilibrium position of the pendulum was carried out before and after switching off the electron bunch (as well as during calibration measurement). At the same time, all electric inducing and mechanical noise remained stable within the whole measurement period. This was achieved by means of additional switching on all the devices which were used during measurement (water and vacuum pumps, magnetron, deflecting magnets, etc.) and their switching off only on completion of the measurements.

In Fig. 3 there are results on measuring the central position of the pendulum when brake target is in position 3 (see Fig. 1). Series I and III on the diagram correspond to check measurement directly before switching on and several minutes after switching off the electron bunch. Series II-A and II-B totally reflect pendulum oscillations at the time when the accelerator is operating (for about 10 minutes) and for some time after the bunch is off. Additionally, a trend line is drawn (averaging by 3 points).

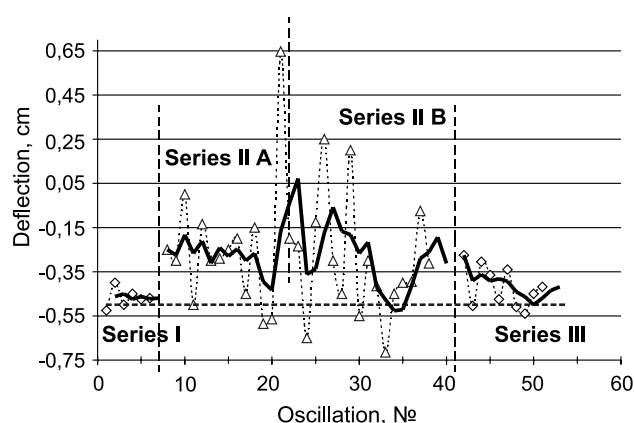


Fig. 3

Measurement of central position of pendulum equilibrium when brake target is in position 3.

Results of a similar experiment are given in Fig. 4. The only difference in this experiment is that the brake target is in position 2. Also a trend line is added (averaging by 3 points). Series I and III are check measurements made directly before switching on and after switching off the electron bunch. Series II are pendulum oscillations at the time when accelerator is operating.

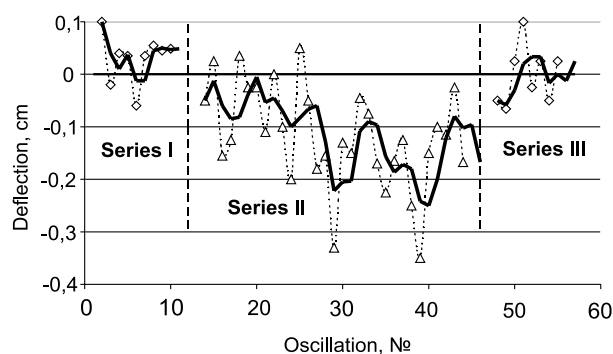


Fig. 4

Brake target in position 2

From qualitative comparison of trend lines (Fig. 3 and Fig. 4) it can be derived that there is a correlation between switching on the electron bunch and the average deflection of the pendulum from equilibrium position if compared to checked series before and after switching on. At that, direction of deflection changes depending on what pendulum load the brake target is close to.

Unfortunately, due to circumstances beyond the control of the author it seems to be difficult to improve experiments accuracy or to accumulate much of statistical data by now. Estimate of the value of the force which may cause such a shift of position of pendulum equilibrium was carried out. In the experiments this deflection did not exceed 1-2 mm (in the units of registering scale). Calibration of a rigid suspender (if it applies to a massive load at a pendulum end) gives the upper boundary of this force of not more than  $10^{-6}$  N.

## Conclusion

A series of experiments were made on checking the possibility to generate a field at deceleration of charged massive particles in matter.

Electrons accelerator was used as a source of charged particles. A narrow bunch of relativistic electrons (average beam power is 450 Wt, electrons energy is about 30 MeV) was directed at a brake target made of wolfram where deceleration of accelerated electrons took place.

Measurement proved appearance of statistically reliable deflection of a torsion pendulum, one of massive loads of which was located close to a brake target by the time of deceleration of relativistic electrons.

Change of direction of pendulum torsion at shift of a brake target from one end of the pendulum to the other was also registered. The value of the force which causes pendulum deflection has the upper boundary of N.

Of course, these first experimental results on checking the predictions made on the basis of development of the model of extended space are of preliminary nature and need more thorough checking. That will be the basis of future experiments.

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# Joe Flynn's Parallel Path Magnetic Technology

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There is a widespread opinion common to the mainstream academic community and also to various alternative scientific forums, that some kind of exotic new physics will be required to design and implement over-unity technologies. That is to say electrical motors, electrical generators, or other apparatus, which produce an excess of magnetic force or energy above the value actually inputted.

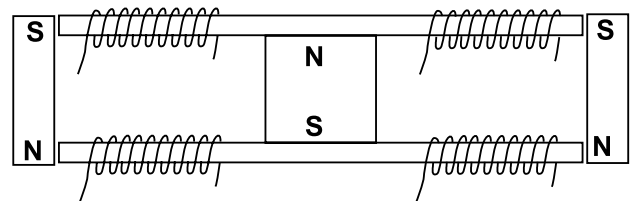
However, this has recently been experimentally demonstrated not to be the case, as I have validated myself in simple \$20 experiments undertaken at home with parts bought from the local hardware store. It is the purpose of this article to educate readers that with care, thought, and a little work, it can be demonstrated that existing textbook physical law, freely allows for the extraction of excess electrical energy from magnetic systems.

## ***The Flynn Research Project***

Joe Flynn has been engaged in magnetic flux research for over 25 years now. His work is long standing, comprehensive, and in later years, well funded. It is reported \$7m has been spent to date, with over \$1m alone developing a revolutionary high performance magnetic motor. His equipment is validated, and apparently already in mass production for select customers. Yet few researchers have heard of Joe Flynn. This surprising situation will hopefully shortly be changed, and Joe Flynn awarded the scientific accolades he deserves, for being the genius master mind behind one of scientific history's most outstanding research projects. Since many lines of research have been formulated and explored by Joe Flynn, the following article presents only a brief summary of some of his best art apparatus, but is nonetheless sufficient to convey the basic ideas.

The first illustration (Fig. 1) is taken from Joe Flynn's US patent 6,246,561, and explains a simple magnetic force multiplication experiment, which forms the basis for the Flynn magnetic art. If the windings on either side of the central magnet, which are normally connected in series, are properly pulsed, the field of the permanent

magnet in the center will be diverted to the opposite side of the core flux path provided. Or in alternative language, the side of the core that is pulsed is demagnetized, relative to the field of the permanent magnet used in the apparatus. This is elementary textbook physics anyone can understand.



**Fig. 1**

1.75 times more force is delivered to the legs of the core than is provided by the electrical input to the control coils

So what is surprising about this apparently simple apparatus is that the armature on the side of the flux core will contain 1.75 times more units of magnetic force, that could be manifested by the electrical input to the apparatus alone. Since the ability to arbitrarily move the force from one point to another is the basis for motion or work, however simplistic, we therefore have a basis for a system that can be developed for practical technological purposes. Expressed in alternative language, we also have the capability to engineer a time varying magnetic field, without the need for moving parts, which will allow development of systems that output electrical energy. Both capabilities are highly desirable, and offer substantial opportunity for technical development.

Following on from this basic experiment, there is a second simple and logical improvement in layout illustrated in Fig. 2, which should be obvious, but has been shown not to be the case. In this instance, the pulse is centrally located, and a dual flux field layout employed, which both demagnetizes the core relative to one magnet, and magnetizes it relative to the other. Since the two actions are complementary, the input required to manifest the flux switching effect is halved, therefore doubling 'efficiency.'



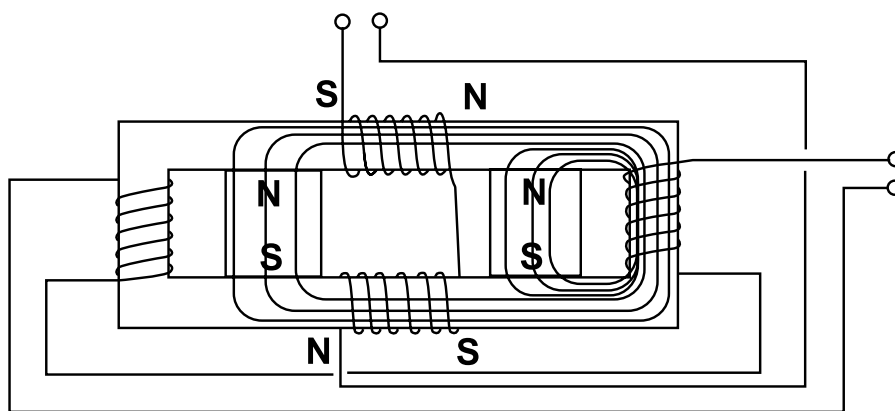


Fig. 2

3.47 times more force is delivered to the legs of the core than is provided by the electrical input to the control coils

It should be noted that while the efficiency is doubled, the absolute output may not be significantly improved. This is because the major weakness of this effect and technology is flux saturation of the core, with values depending upon the specific properties of the B-H curve of the core material employed, limiting the absolute output of both layouts the same.

The previous statements are not required to be taken on trust, and simple experiments have been proposed by Joe Flynn, such that anyone can validate this effect for themselves. Figure 3 is a simple experiment taken from the Flynn website (<http://www.flynnresearch.net>), that can be used to validate the principals put forth in this article.

### Simple Magnetic Force Multiplication Experiments

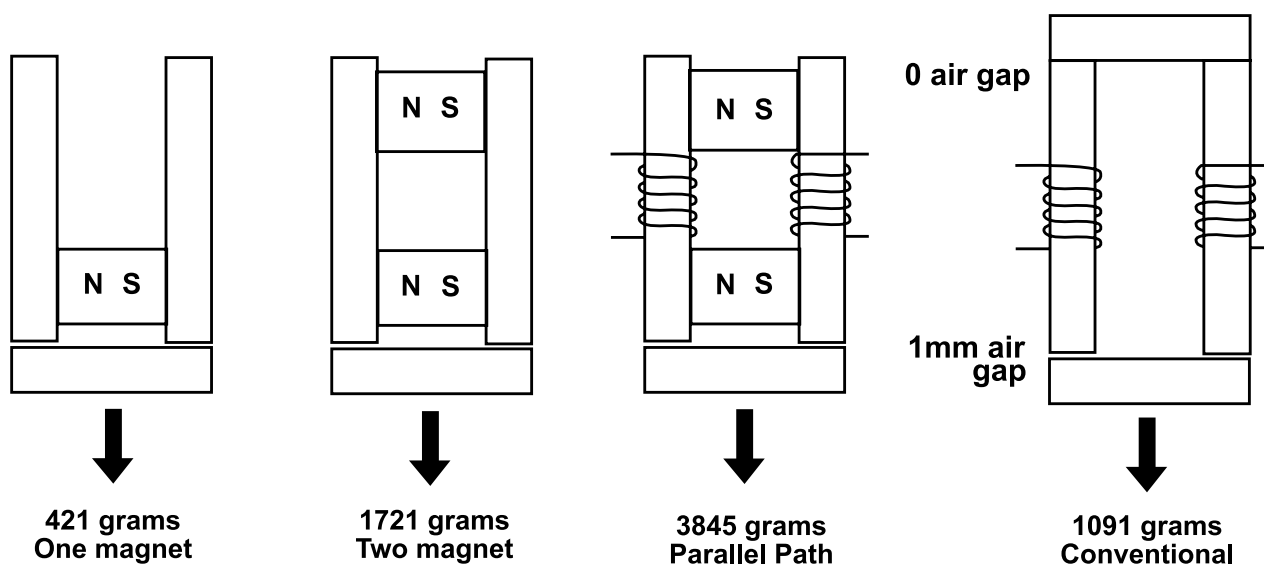


Fig. 3

Parallel Path can deliver 3.47 times more force to the legs of cores than any competing conventional technology

An even simpler non electrical flux experiment was proposed by GM in the Parallel Path Egroup. My apparatus is illustrated below in Figure 4. It is no more than magnets and steel staple strips, bought from a local hardware store for a total of under \$10. The Parallel

Path effect can be replicated with identical apparatus, at only a slight increase in cost and complexity, with the addition of a simple 12V polarity reversible power supply, such as those commonly sold to power computer speakers, among other applications.

## Simple Magnetic Force Experiments

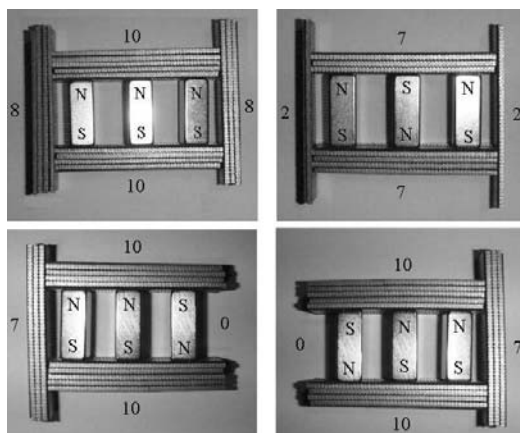


Fig. 4

Relatively small changes in layout produce large changes in force

## Conservation of Energy / Field Potential

One of the aspects of the Flynn technology people find most difficult to understand, is how you can have a device that delivers 3.47 times more magnetic force than is electrically inputted, yet not violate accepted principals of text book physics, as stated in the introduction. The key point here is conservation of energy. Magnetic fields do not gain energy – they are conservative. You can only ever obtain less energy from a magnetic field minus losses, than is in fact present. I feel this apparent puzzle can not be better explained, than by reference to Joe Flynn's own words:

“Since the Parallel Path System produced 3.47 times more force than the conventional system, with the same electrical input, it appears to violate conservation, this is only true when observed from a traditional view point. The system contains three flux producing sources (2 magnets and an electromagnet) which together are capable of producing a far greater force than is actually produced. All of the flux sources together can produce a force of 13.11 units, therefore in the physical sense a loss of  $1 - (9.01 / 13.11) = 31\%$  is realized.”

So the system is 350 % efficient, in terms of delivered magnetic force compared to net electrical input, yet still conforms to the accepted physical principals of energy conversation, by being only 69 % efficient, in terms of the fields present in the system. However surprising this result may appear, the analysis presented is in outline correct, with the difference between fields present in the system, and net electrical input, being the important concept presented.

## Losses in the System and Optimisation

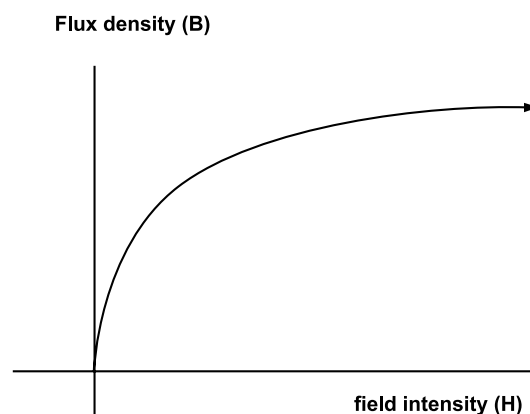


Fig. 5

In order to properly optimise flux cores, an appreciation of the physics that underlies the transfer of flux within a core is required. The normal magnetization curve, or B-H curve, is a mathematical relationship between applied field intensity H, and resultant flux density manifested in the core B. It varies according to core material, and the curve will shift, if there is a starting magnetism within the core, such as that provided by the field of a permanent magnet. If the start magnetism is excessive, the core is saturated, and will not properly respond to the applied force H. A simple B-H curves is illustrated in Fig 5.

Hysteresis is a delay between applied magnetic force H, and resultant flux density B, that again varies according to material type. It also manifests as a delay between the termination of force H, and the manifestation of flux density B. So, the system will not turn on instantly, and will not turn off instantly, in simple terms. This is because the magnetic memory of the core, means a flux vector remains within it, even when the application of magnetic force H has been terminated. If we apply a reversed force H to the core, the basic B-H curve is now expanded as in Fig 6, with the memory effect also illustrated.

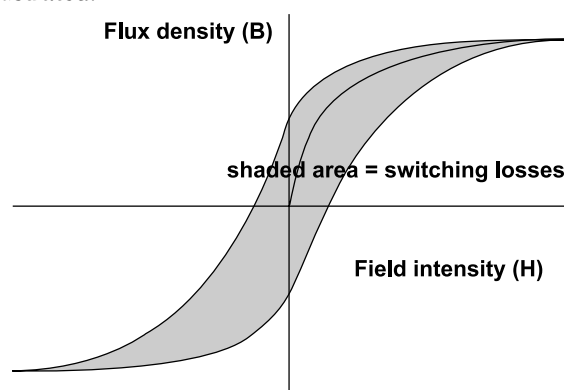


Fig. 6

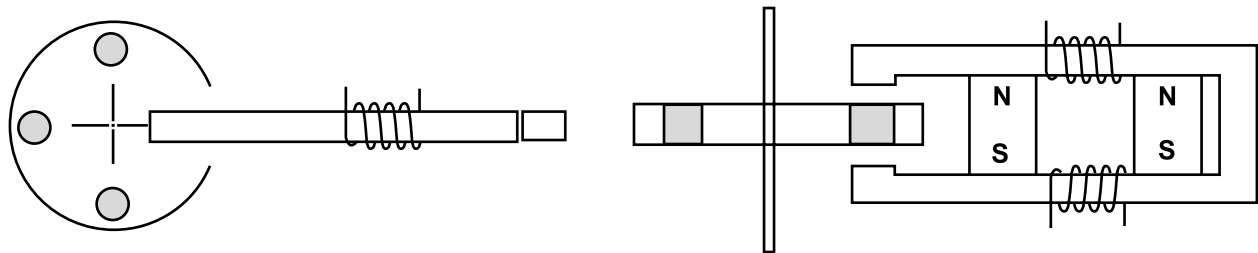
Thus as can be seen, to return to the initial switched state, the remnance magnetism must now be overcome, hence input once in operation, will be greater than that required for the

very first pulse. The area within the hysteresis curve gives a rough estimate for the amount of wasted energy, and along with other conventional sources of losses

resultant in flux transfer within a core, is what reduces the efficiency of flux cores from maximum values of 2, or 4, down to values such as 1.75 or 3.47, typically.

**Motor Apparatus**

**Simple Parallel Path Technology Demonstrator Motor**



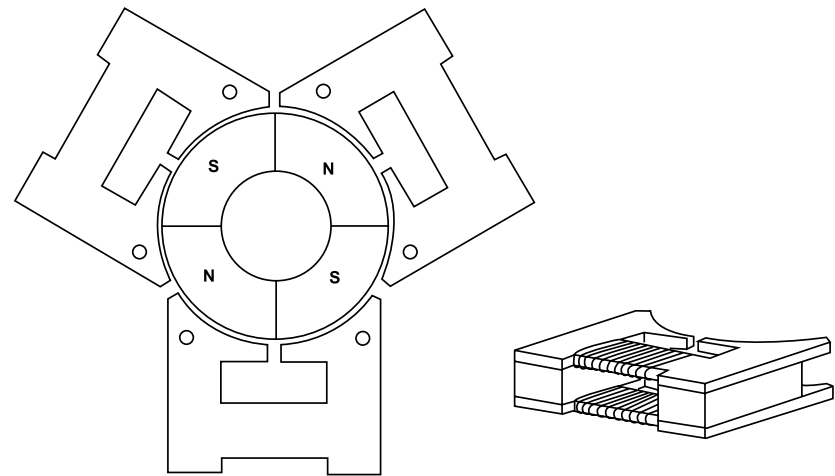
**Fig. 7**

Designed to demonstrate core principals, not provide over-unity

Although numerous practical applications abound for this effect, electric motor design remains the most outstanding opportunity. To this extent, again a few simple images, should be sufficient to explain how the basic flux switching apparatus, can be turned into a highly efficient electrical motor.

The first motor shown in Fig. 7 is one I have proposed to validate the flux switching effect at a most basic level. It illustrates the point made in the Flynn patent, that the armature of the core can be removed, and replaced with a motor flux path. This first motor is not claimed to be highly efficient, but it helps one to understand how the transition from simple flux core to motor takes place.

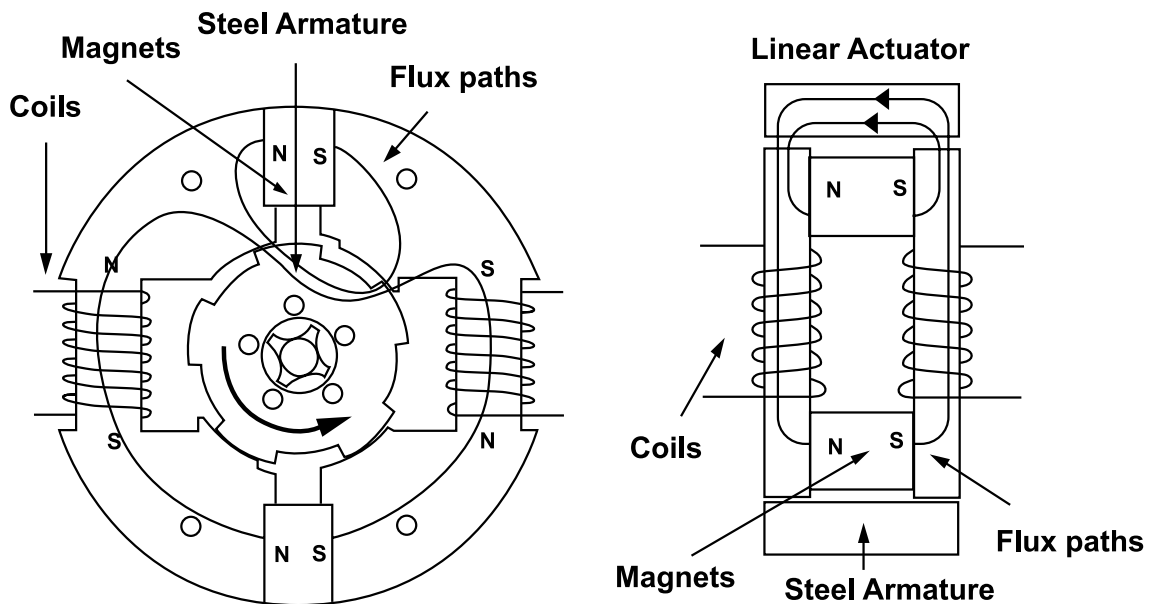
The next motor shown in Fig. 8 is again taken directly from the Flynn patent, and illustrates the next intermediate step to motor design. The fields of the permanent magnets are alternatively switched from one side of the surrounding flux cores to the other, alternately interacting with N and S poles on the rotor, imparting motion to the central rotor shaft.



**Fig. 8**

Magnetic force is alternately switched from one leg to the other, imparting motion to the rotor sections

With proper financial support, and the facilities to have metglas cores custom moulded, Joe Flynn was able to develop his final best art, shown in Fig. 9. No detailed performance numbers have been released for this motor, whose precise performance characteristics remain proprietary to Joe Flynn at this time. But the optimisation is so expert, it is stated to posses certain exotic properties, such as cool ambient operation, even during prolonged periods of continuous load. This ‘cold running’ is said to be of great interest to the American military, as it offers excellent stealth performance characteristics.



**Fig. 9**  
Optimal Flux Core Motor Construction

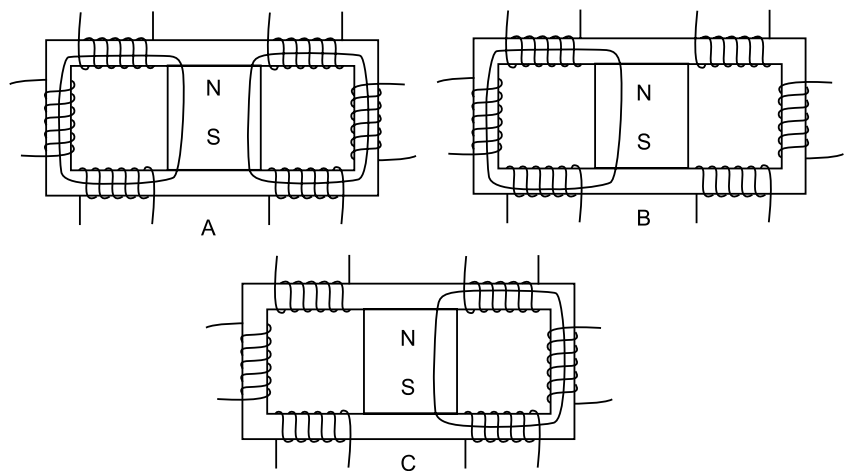
### ***Electrical Apparatus***

Many readers will no doubt have noticed the similarity of the first illustration presented in this document, to the so called 'Tom Bearden MEG.' This is fair comment, and Joe Flynn has always highlighted this issue. However, it has been commonly stated Joe Flynn has simply developed mechanical apparatus, and the MEG with its electrical functionality, is distinct art, more advanced than the mechanical Flynn apparatus. However, this is shown not to be the case by a careful examination of the Flynn patent, in which the following is stated in the 'Power Conversion' section:

'The construction (shown in Fig.10 A) utilizes four control coils and a single permanent magnet and the construction (shown in 10 B) uses two control coils and two permanent magnets. The flux that would normally be supplied by a primary winding is supplied by the static flux of the permanent magnet or magnets and the control coils convert this static flux into a time

varying flux in a novel way. Both arrangements use two secondary coils, the secondary coils are placed in the region of the continuous flux path that would be occupied by an armature or rotor in the linear or rotary arrangements. The regions of the flux paths that perform work are the same in all cases'

'By alternating the polarity of the control coils during one cycle, one working region experiences an increasing flux and the opposite region experiences a decreasing flux and during the next cycle the opposite occurs. This results in the induction of a voltage in the secondary coils that is decided by the magnitude of the change in flux in the working region and the time in which this change occurs. The novelty of this discovery is that the primary flux inducing the voltage in the secondary coils is supplied by the permanent magnet or magnets and is far greater than the flux supplied by the control coils.'



**Fig. 10**



Fig10 taken directly from the Flynn patent makes the point even clearer. As can be seen, the device illustrated is in all functional respects absolutely identical to the so called 'Tom Bearden MEG.' This identical prior art, therefore calls into question the intellectual property rights of Magnetic Energy LTD, as the same invention can not be patented more than once. Joe Flynn has also stated that his intellectual property rights will be robustly defended, by legal action if necessary, and he regards himself and his company as being in possession of exclusive rights to the so called 'MEG' unit.

As regards replication of electrical output orientated flux core devices, certain important details need to be stated. For example grade 8 ceramic magnets should be used, so as to avoid flux saturation of the core. A basic error, many early experimenters wasted time on. The requirement for strong magnets to obtain over-unity results, is as much of a myth, as the idea new physics is required.

But perhaps the greatest trade secret of the electrical devices, one which several lengthy non disclosure agreements are required to be signed before it can be disclosed, is that the input and output circuits must be closed in series. The disclosure of this technique amounts to putting the basic MEG methodology fully into the public domain.

The reason for this circuitry requirement is obvious enough, with only a little analysis. If the output circuit is closed when the input circuit is activated, then the input energy simply leaks into the output circuit, as in an ordinary transformer. So no flux switching effect is manifested, and the field of the permanent magnet is static in time. Thus you have an ordinary transformer, with reduced efficiency, because of the core flux saturation effect provided by the permanent magnet.

This is one of the most important point to make about the Flynn apparatus. If you approach it as if it is a normal piece of scientific equipment, then proper optimisation is not greatly problematic. For example more turns on the output coils, simply means more voltage and less current, exactly as standard textbook equations predict. Generally, problems only occur, if you imagine the effect is based upon exotic scalar type or vacuum energy physics, when in fact it is ordinary flux manipulation within a core.

## Present Status of the Flynn Project

Initially Joe Flynn was remarkably open about his work and research. However, since performing a working demonstration of various advanced hardware samples for the American Department of Defence, little has been heard.

I want to clearly emphasize I do not speak for Flynn research, nor am I in any way connected with Flynn research, and by consequence, have no inside information whatsoever as to the present status of the project. But we all sincerely hope, that the project has not been

swallowed whole by the American deep black military industrial research complex.

However, even if this is the case, it does not mean the technology is lost. Extensive and generous details have been provided by Joe Flynn of his research, both in his patent deposition, website, and other comments, such as to enable persons of scientific training and skill, to replicate the effects stated.

While replication of the electrical effect remains extremely demanding, the mechanical apparatus is very easy both to understand and replicate. There is no reason why scientists and home tinkers together, can not build Flynn type flux core motors, and explore over-unity flux manipulation for themselves. The future has arrived, and it is simpler and cheaper than anyone imagined to be possible.

*the input and output circuits must be closed in series. The disclosure of this technique amounts to putting the basic MEG methodology fully into the public domain.*

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- |                          |                                  |
|--------------------------|----------------------------------|
| - Global Scaling Theory  | - Hydrogen-Helium Energetic      |
| - Gravitation theory     | - Information technologies       |
| - Mathematic Biology     | - Telecommunication technologies |
| - Gravitation energetics | - Transport technologies         |

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# Flynn Research Company

<http://www.flynnresearch.net>

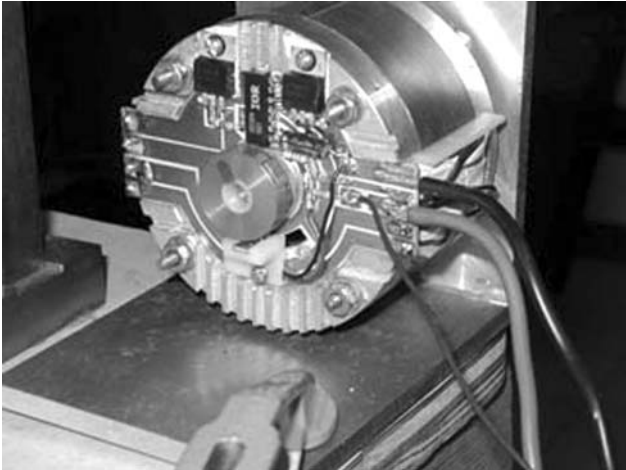


Photo 1

3.3" 1.2" stack height 1/2 hp weight 59 oz

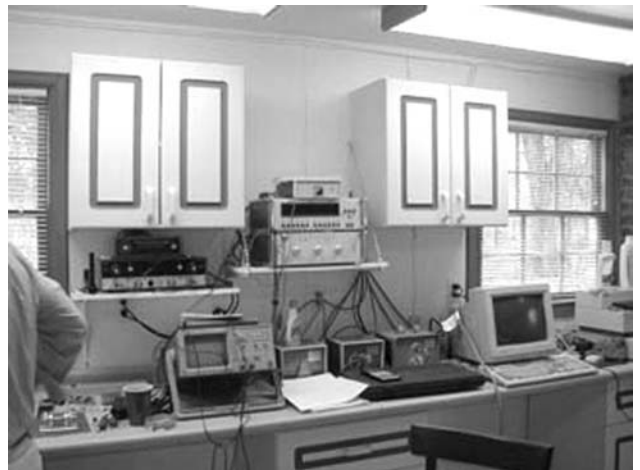


Photo 2

Dynamometers, Power Analyzer etc.

*Editor: Below we publish information and photos, represented on Flynn Research Company website (<http://www.flynnresearch.net>), and a description of the patent on methods for controlling the path of magnetic flux.*

Flynn Research is dedicated to research focused on the novel application of permanent magnet and electromagnetic technology. Magnetism is a field that has potential for tremendous growth from both a science and application perspective. The researchers of Flynn Research Company believe that magnetism is one of the least understood and most misinterpreted of the natural forces, with the exception of gravity.

Even though much work has occurred in the advancement of magnetic materials, little advancement has occurred in the basic understanding of magnetism. The field of magnetism is based on both theory and 'myth' and is generally described as a 'phenomenon'.

***Everything known about magnetism is based on "effect and relationships" without a clear understanding or provable definition of what is a line of magnetic flux.***

We still do not know what a line of flux is and how it travels through space. We know flux "appears" to originate within a permanent magnetic material, forms a loop from one end to the opposite end of the magnetic material, appears to occur without a time constant, produces a force (attractive and repulsive) between other permanent magnets and "magnetically permeable materials and has a relationship to current flow. Everything known about magnetism is based on "effect and relationships" without a clear understanding or provable definition of what is a line of magnetic flux.

The research is based on the "magnetic force of attraction effect" that is related to magnetic flux by the number of lines of flux occupying a given area or flux density squared. The simple fact that if the number of lines of flux occupying a given area "doubles" the force of attraction becomes four



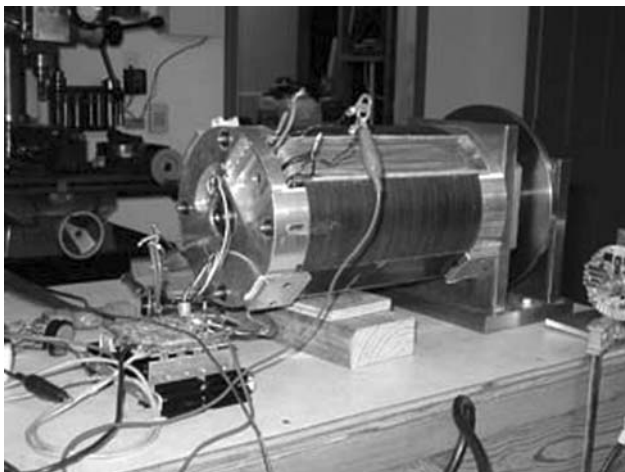
**Photo 3**

8" dia x 8" height motor presentation



**Photo 5**

Technology Discussion



**Photo 4**

8" X 8" motor testing



**Photo 6**

Parallel Path Test Apparatus

times greater. The basic model shows that with specific structures electromagnetism acting with permanent magnet materials can divide and multiply force in a manner that cannot be explained with conventional physics.

Rotary devices, linear devices, reciprocating devices and power conversion devices are now a patented product of this research. The goal of the Company is to commercialize their devices for use in an energy dependent world. Flynn Research is a research & development company and in cooperation with Magnetic Revolutions LLC licenses their technologies for use in the electric motor and power conversion industries.

The researchers do not construct their own test equipment nor write capture and data evaluation programs but use industry / scientific accepted products. Close to \$1.5 million has been expended developing, protecting and evaluating the technology. Many fine minds have been involved in the development and evaluation of the technology. Many presentations have been given both to motor companies and academic groups. The prototypes have all been professionally built, which include a 1/2 hp 3.3" dia 1.2" stack height, the assembled motor weighs 59 oz and a motor 8" dia with a stack height of 8" currently undergoing testing.

# United States Patent No. 6,246,561

June 12, 2001

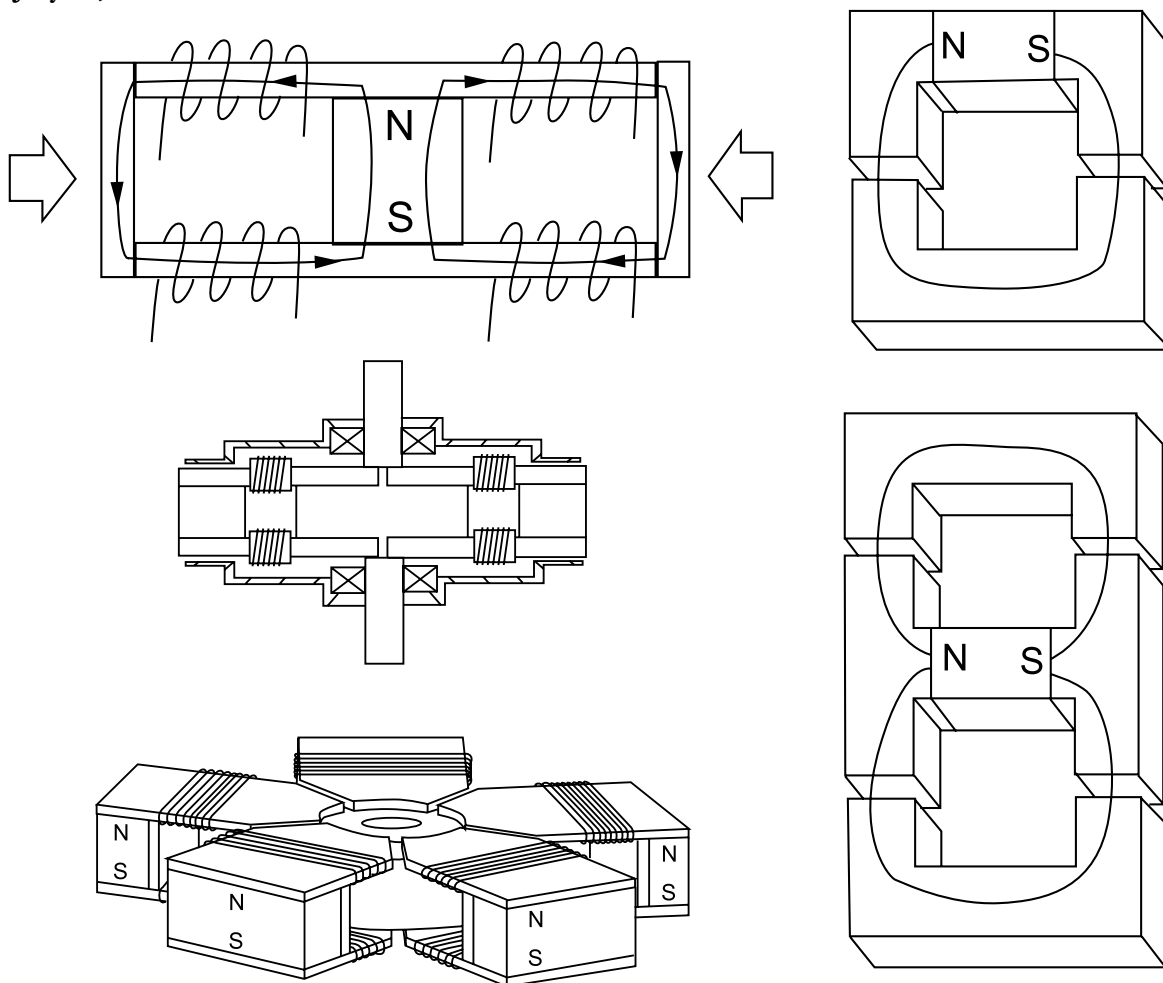
## Methods for controlling the path of magnetic flux from a permanent magnet and devices incorporating the same

Inventors: Flynn; Charles J. (Greenwood, MO)

Assignee: Magnetic Revolutions Limited, L.L.C (St. Louis, MO)

Appl. No.: 127056

Filed: July 31, 1998



A permanent magnet device includes a permanent magnet having north and south pole faces with a first pole piece positioned adjacent one pole face thereof and a second pole piece positioned adjacent the other pole face thereof so as to create at least two potential magnetic flux paths. A first control coil is positioned along one flux path and a second control coil is positioned along the other flux path, each coil being connected to a control circuit for controlling the energization thereof. The control coils may be energized in a variety of ways to achieved desirable motive and static devices, including linear reciprocating devices, linear motion devices, rotary motion devices and power conversion.

**Editorial: The principle of designing of the device (two counter parts of the flux are used) resembles  $\Phi$ -machine or Gramm's generator. Read in this issue more details on these devices.**



# Flux-machine And Its Analogues

Review prepared by correspondent Alla Pashova, Russia

Flux-machine (or  $\Phi$ -machine, since configuration of its field resembles the Russian letter “ $\Phi$ ”) was designed by Alexander V. Frolov during the first half of 1990s.  $\Phi$ -machine description was published more than once on the pages of scientific periodicals (1994, Institute of New Energy, Newsletter, June 1994, p.9.; 2002, New Energy Technologies, 2002, p.3), and it is well known to many researchers concerning themselves with such kinds of engineering.

Let us consider the arrangement of  $\Phi$ -machine; see Fig. 1 (first published in 1994). A report was presented at the conference «New ideas in natural science», 1996 in Saint Petersburg (see photo in Fig. 1). The primary coil is mounted in the center of generator; two secondary ones are diametrically wound on a ring core. An air gap between ring and central magnetic circuits are of particular importance. **Two magnetic fluxes from two coils are balanced, and, thereby, there is no reaction in the primary circuit.**

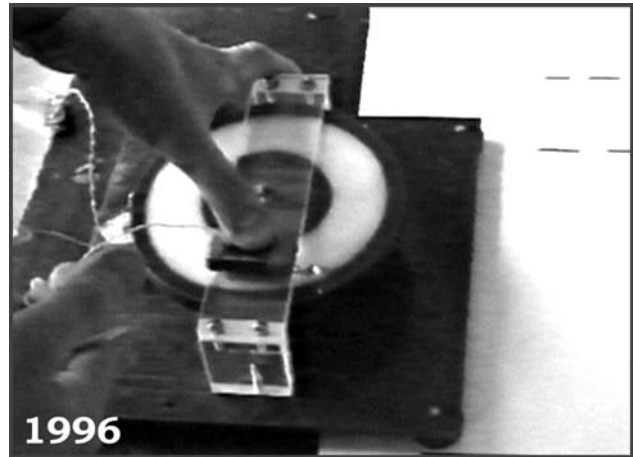
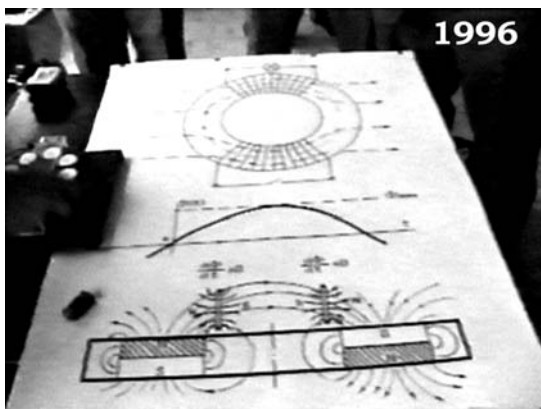
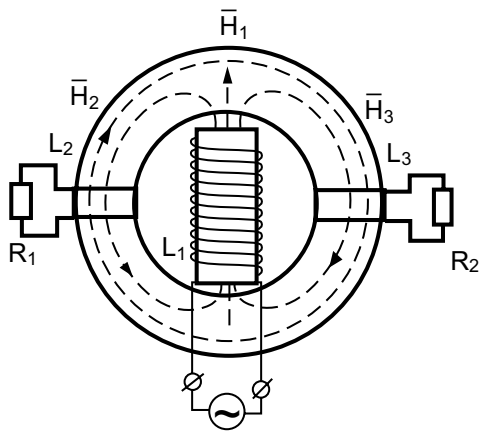


Fig.1

See also Fig. 7, p.29 – the analogy is evident

The device bears some similarity to the Gramm's generator (Zenob Theophyl Gramm, 1826-1901, Belgium-France, took out a patent for an electric ring-rotor generator in 1869). In Gramm's generator (Fig. 2) the ring rotor with a toroidal winding rotates. The toroidal winding touches two diametrically located conducting brushes. It turns out that in the ring of the rotor all winds of one rotor half create a field which is directed towards a field created by the other rotor half.

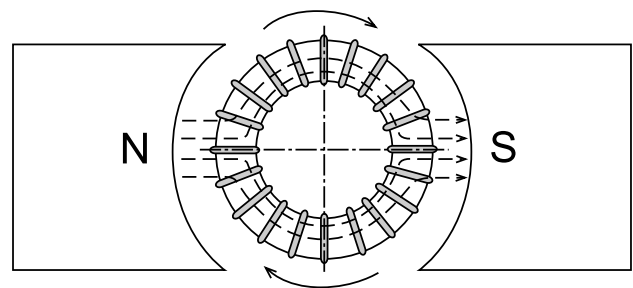


Fig. 2

An example of analogous device is represented in Fig. 3 (information is from the website:

<http://www.skif.biz/energy/arhiv1-6.shtml>), and also in Fig. 4 (we have written about this invention in New Energy Technologies, Issue #5 (8), 2002, article by V.I. Boryak, Email: spin@i.com.ua).

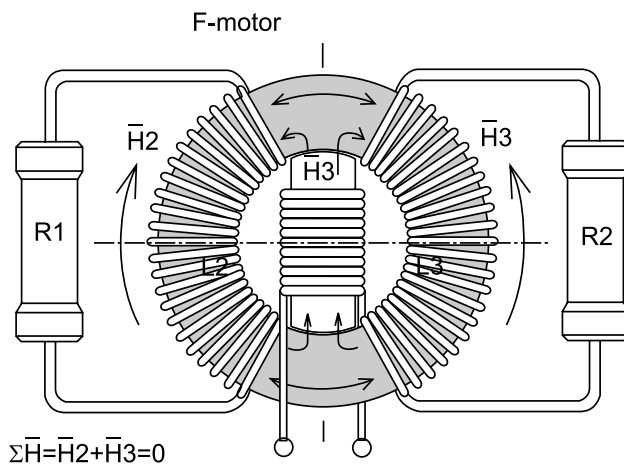


Fig. 3

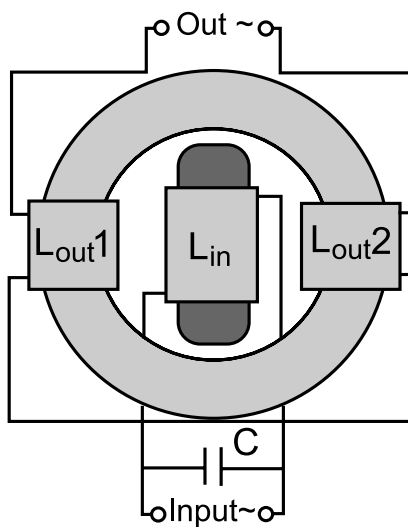


Fig. 4

In August 1999, according to Stephen Hartman (Hartman Multimedia Service, Email: hart@harti.com, info@ccard.net), a German research team designed a toroidal generator. As stated by the researchers, it obtained more than 1.200 W by load while efficiency exceeded 100%!

This subject has become very popular among different researchers. Fig. 5 illustrates a design with a magnet rotating in the center (designer - Olaf Berens, Email: olaf.berens@prognost.com).

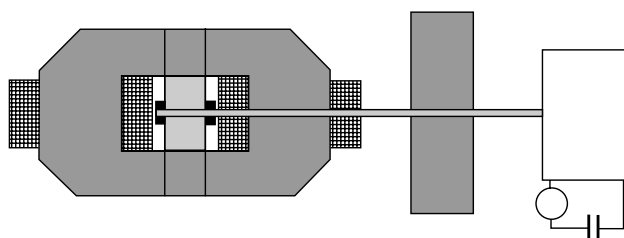


Fig. 5

One more example from the USA: in February, 2003 Donald Hofmann (USA) filed an application for patenting "Generators and transformers with toroidally wound stator winding». Below we publish the description of the patent.

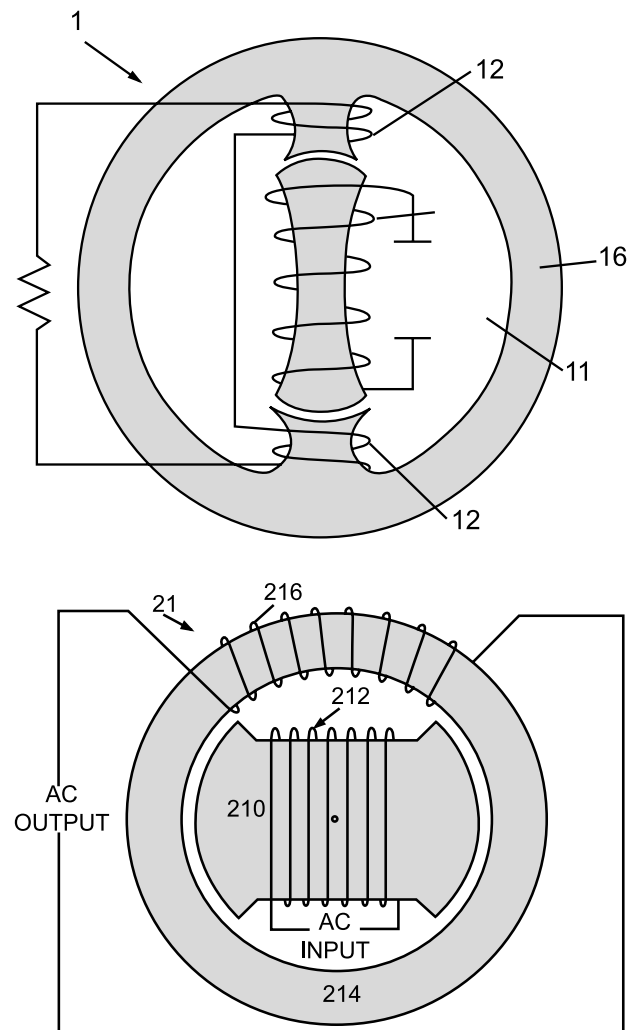


Fig. 6

Inventors: Steven L. Sullivan, USA; David L. Goulet, USA; Donald Hofmann, USA.

Electrical generators are provided with toroidally wound stator windings electrically connected in series; a high permeability stator core, preferably an amorphous magnetic alloy material, glassy metal or HYPERCO™ 50 laminations; and a rotor. The toroidally wound stator coils and the stator core trap essentially all of the flux fields generated by the stator coils within the stator core. Since there is essentially no magnetic field leaving the stator, there is essentially no flux field interaction with the field generated by the rotor. The reduction of flux field interaction also reduces counter torque.

According to another embodiment of the invention, open positions of a rotor may be filled with magnetic material, preferably iron. Filling open portions of the rotor may assist in reducing undesirable flux leakage from the rotor. By trapping substantially all of the flux within the rotor, interaction between rotor and stator flux is reduced. In this manner, counter torque is reduced thereby increasing the overall efficiency of the device.

A prototype of this embodiment was constructed using a standard 10 kWt gas-powered generator. The stator was removed from the generator and its housing. The stator windings were removed from the stator and rewound by hand using a No. 10 size copper wire with 180 winds wrapped in a toroidal fashion around approximately 180 degrees of the stator.

The stator was then reinstalled in the modified housing and re-attached to the gas-powered generator. A standard 12 volt car battery was attached to the input of the rotor. A 12.92 volt input with 0.8 Amps was measured as the input to the rotor. The output was measured as 6.5 volts with a 40 Amp output. A series of input and output measurements were taken for various inputs.

*Editor: Thus input power is 10 Wt, and output power is 260 Wt.*

So, the old well-known ideas have found new ways of embodiment, though their essence remains unchanged. Let us note that Faraday Labs Ltd has been working on creating a prototype of  $\square$ -machine with a toroid of 200 mm in diameter.

***Please, read more about this in the next issue!***



*Editorial: We publish the specification of several interesting patents, which were taken out by Russian inventors for recent years.*

## **Russian patents on alternative energetics**

- №93001754, 1996.06.27, Converter of gravitational forces into energy, V.V. Mironov and others
- №92008720, 1995.02.10, Slavic method to produce energy by conversion of gravitational forces, V.V. Mironov
- №93006696, 1995.04.30, Supporting converter of gravitational forces into energy, V.V. Mironov
- №2001121071, 2003.04.10, Method to create energy in liquid, heat-generator and heat-and-power device, A.Yu. Baurov and others
- №2132109, 1999.06.20, Generator of mechanical energy, A.Yu. Baurov and others
- №2001125794, 2003.05.10, Generator of static electricity, S.I. Danilov
- №2001120796, 2003.04.10, Electric power device, D.M. Beliy
- №98116077, 2000.05.10, Heat engine (monotherm, "perpetual mobile of second-type"), V.I. Likhachov and others
- №93048971, 1996.04.20, Float engine, I.P. Tchinarev
- №94023174, 1996.03.27, Gravitational-hydrostatic engine, I.P. Tchinarev
- №98112650, 2000.03.20, Water engine, V.A. Gylchuk
- №2001115953, 2003.03.20, Potential engine by Prokopenko, V.F. Prokopenko
- №2001115954, 2003.03.20, Potential amplifier by Prokopenko, V.F. Prokopenko
- №2001124364, 2003.04.20, Drum of gravitation (gravity), I.A. Strelnikov
- №95107181, 1997.02.20, Method to convert energy of physical vacuum into energy of physical space, O.K. Polev and others
- №92008695, 1995.04.20, Method to get overunity efficiency, Yu.V. Karasev and others
- №93006851, 1995.04.30, Principle, method and device for circulation of mass by force of gravitation and inertia, G.S. Kirichenko
- №93039885, 1996.05.20, Hydro-gravitational electric power station, L.S. Konkov
- №93036371, 1995.11.27, Method to convert energy created in result of interaction of earth's gravity force and air bearing capacity into electric energy, V.I. Kovalenko
- №93025690, 1996.07.27, Method and device to convert heat energy into mechanical one, A.I. Lendyaev
- №2001122885, 2003.04.20, Rotary method to convert magnetic energy into mechanical one, L.N. Mezentsev
- №2001106783, 2003.02.10, Gravitational source of energy, A.D. Yurik and others
- №2001115968, 2003.03.20, Method to convert energy, V.S. Gorelyuh

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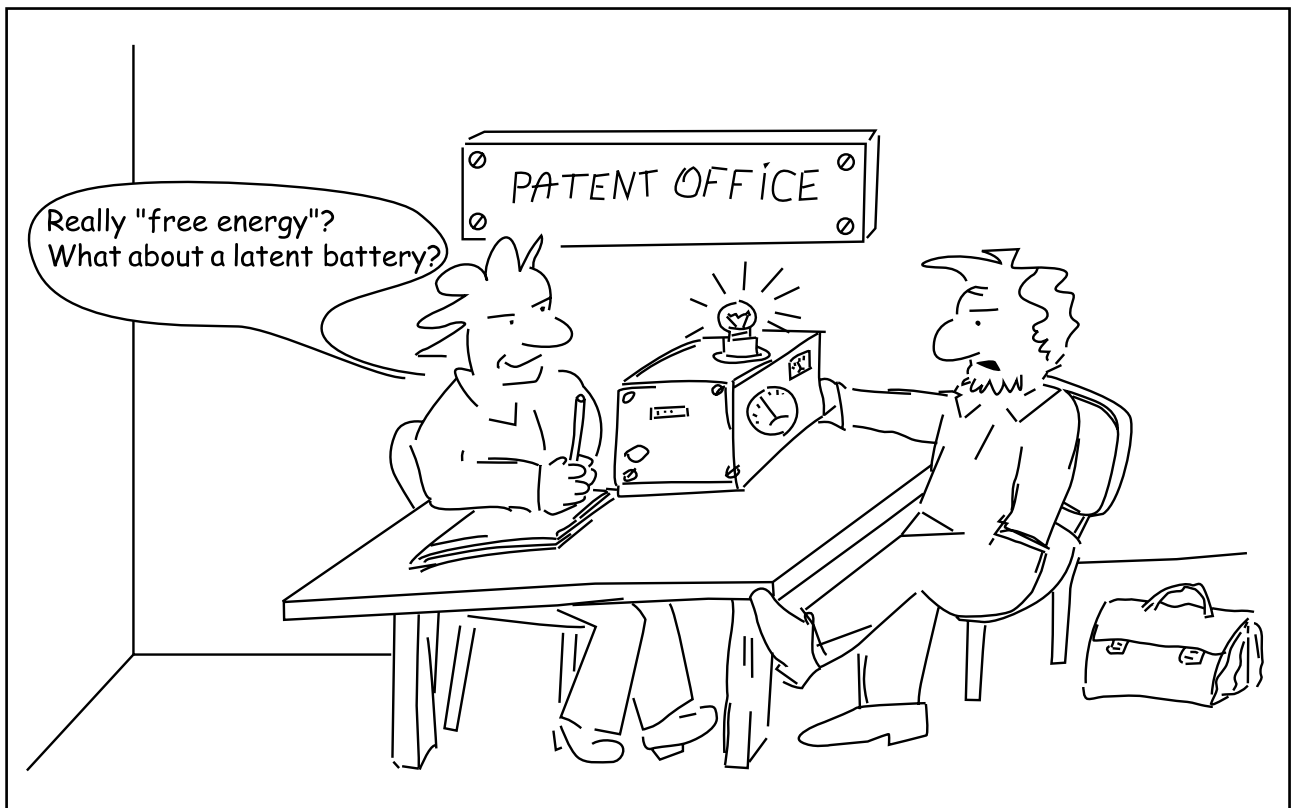
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# Device for conversion of magnetic field energy into kinetic energy

No. 94026259, 1996.05.20

Author: Pavel Imrish

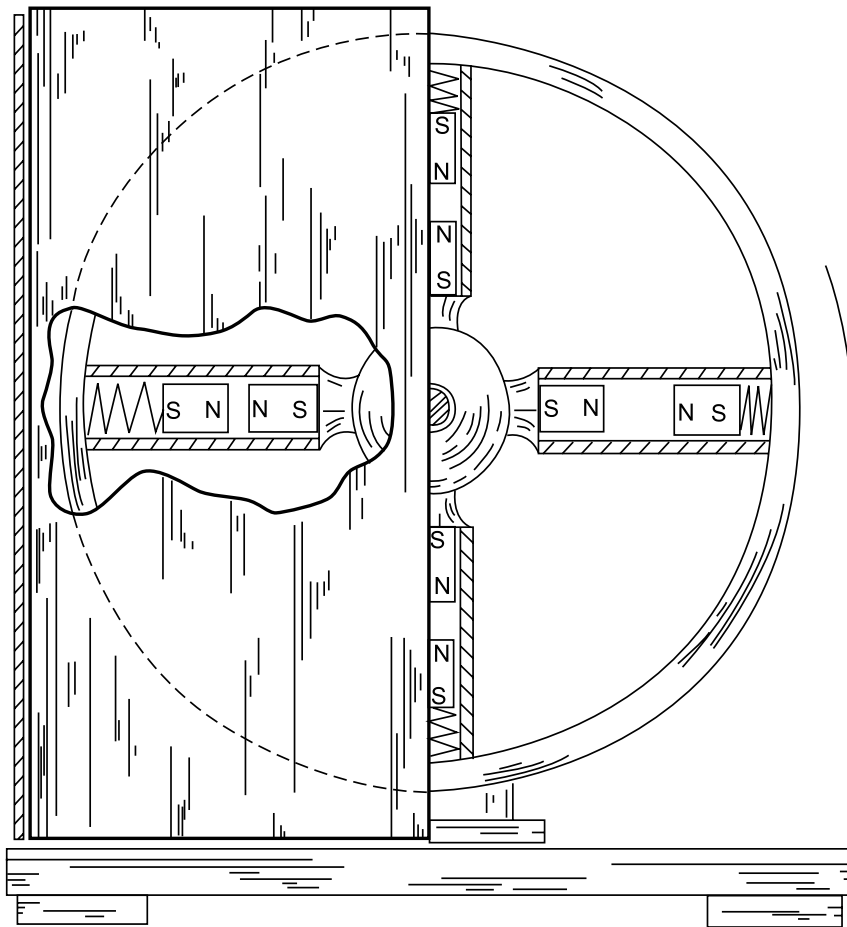


Fig. 1

The invention refers to a device for conversion of magnetic field energy into kinetic energy. The device has a rotating wheel with at least two radially opposing non-magnet holders used as guide ways for at least two permanent magnets, respectively. The permanent magnets are mounted in the holders so that there is a possibility to remove them. From the both sides of the wheel plates made of magnetic material are mounted axially; the plates surround the wheel partially. Depending on direction of the both poles, namely on location of the similar and opposite poles towards each other, compression element is situated on the holders, or between the wheel and the outer end of the permanent magnet located at the furthest radial distance from the axle of the wheel, or between two permanent magnets. (The device operation principle is obvious from Fig 1).

*Editor: We have found an example of a similar device whose description is presented in the book by R. Ford The Perpetual Motion mystery [1].*

*In this case, there is an analogous process, during which half of the cycle is screened and the rotor is supposed to rotate permanently (see Fig. 2).*

*1. R.A. Ford, The Perpetual Motion mystery. Lost Technology Series, p.23.*

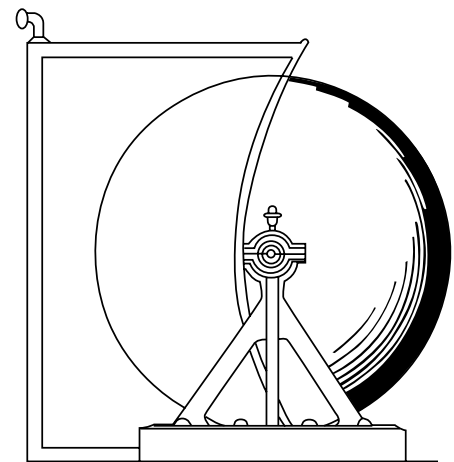


Fig. 2

# Gravity spaceships

Review on Grigory R. Uspenskiy's works, Russia

<http://space21.boom.ru/gravity.htm>

The level of development of modern astronautics is primarily determined by the energy capabilities of space carriers. So, nowadays, the single-mission carrier rockets equipped with chemical engines allow space exploration within the solar system. These carriers have delimited the near-earth space in the form of a geostationary orbit, where the practical-purpose space complexes operate.

Newer and higher levels of quality will be reached by cosmonautics upon its mastering gravity power engineering. Flights towards the nearest stars will become possible and by the end of the next century this will be followed by travels throughout Galaxy.

Gravity engines are structurally simple (**two bodies of different density are rigidly connected**). To form some practicably significant value of thrust it is required to use absolutely new technology regarding creation and retaining of matter of high density which can be compared to that of atomic nuclei. For instance, at an engine mass of about 2 t, it is possible to attain 10 N thrust using bunches of aluminum and lead nuclei. The nuclei are approached to each other at a distance comparable with sizes of these bunches.

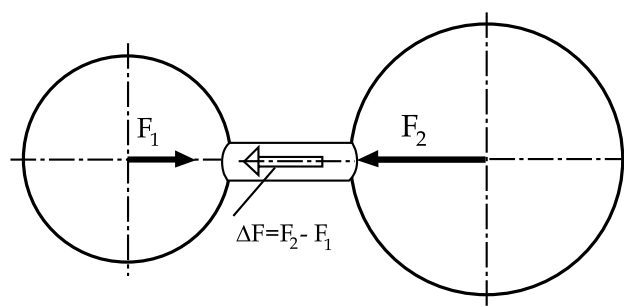


Fig. 1

Use of matter which is denser than nuclei bunch, increase of mass of the gravitating bodies, and reduction of the distance between the bodies causes increase of thrust. So, for a level of density of gravity holes (i.e. for extremely dense state of matter in which it is not attracted by other bodies) limit value of acceleration of the gravity engine reaches the order of  $10^{100} \text{ ms}^{-2}$ .

In engineering we usually use units of distance as meters, centimeters, millimeters, and microns. Let us consider one of them – millimeters. With such a size of the gravitating bodies and distance between them, it is possible to obtain substantial thrust forces of the gravity engine and, accordingly, accelerations of its motion.

**So, using an engine of 20 ton mass we will get the thrust of  $2 \times 10^4 \text{ N}$ , with mass of 200 ton we will get the thrust of  $2 \times 10^6 \text{ N}$ , and so on. Thus, by increasing the engine mass by one order of magnitude, we obtain increase of thrust by two orders, while sizes of the bodies remain unchanged.** But acceleration, in this occasion, remains constant and equal to approximately  $1 \text{ m/s}^2$ .

Decrease in size of gravitating bodies of the engine leads to the corresponding increase of thrust by an order. Decrease of size is realized by increase of density of these bodies by 3 times up to 0.3 mm at the same masses. The acceleration they produce is increased by an order as well, i.e. up to  $10 \text{ m/s}^2$ . Decrease of sizes of the gravitating bodies and the distance between them down to 0.1 mm results in further increase of engine thrust by one more order and also increase of acceleration up to  $100 \text{ m/s}^2$ . If size of the bodies is 1 micron then acceleration increases up to  $10^6 \text{ m/s}^2$ .

It is apparent that even with up-to-date technological possibilities of miniaturization the gravity engine with masses of dozens and hundreds of tons is capable to create great thrust forces and form accelerations considerable enough to fly across the Galaxy. Therefore, the problem of creating a gravity engine is, mainly, the problem of producing and retaining the high-density matter. It will be possible after studying the mechanism of interaction between matter & gravitational substance followed by developing techniques for synthesizing of high-density, large-mass, and small-size substance from this matter.

It is possible to control the value of thrust of the gravity engine changing the distance between gravitating bodies. Thrust direction can be changed by turning the rigid connection of the gravitating bodies. The engine can

be activated by bringing the gravitating masses together, and switching-off by moving them apart.

In a 24-hour period, such a ship can reach a speed of  $10^6$  m/s and cover a distance of about  $10^{10}$  m. In a month, with a top speed of  $3 \times 10^7$  m/s the ship will cover the distance of  $10^{13}$  m; in a year, with a speed of  $4 \times 10^8$  m/s the ship will cover a distance of  $10^{15}$  m; in 10 years -  $4 \times 10^9$  m/s and  $10^{17}$  m, respectively. Apparently, the ship with sufficient over-load can be used for flights within the solar system and for manned flights towards the nearest stars.

When transporting unbreakable and non-urgent cargoes, the acceleration can be increased up to a few dozens of unities. The flight duration might be also increased by several tens of years. This extends the area of utilizing the gravity ships with over-loads of several unities. Besides these ships can be used for transporting operations within near vicinities of the Galaxy.

The high-speed flight will demand protection against approach flow of matter. So, per second (with a ship speed of  $10^{10}$  m/s)  $10^{-12}$  kg of matter will approach the ship. At that density of interstellar material is  $10^{-24}$  kg/m<sup>3</sup> and midship area is  $10^2$  m<sup>2</sup>.

The great speed of approaching matter will create a substantial resisting force. At a speed of  $10^{10}$  m/s, this force will come to the order of  $10^{-2}$  N, whereas with a speed of  $10^{18}$  m/s it will come to  $10^{14}$  N. This is a great value, but as compared to thrust of such a ship which is to equal to  $10^{17}$  N, the former value is a small one. That is why it is possible to overcome such resisting force.

Intercommunication with these ships might be, most likely, realizable by means of distortion of gravitational field. It is possible that the gravitational field distortion will be formed, on the contrary, by generating the matter from the gravitational field, and, most probably, by a method as yet unknown.



Monograph **“General Etherodynamics. Modeling of matter structures and fields on the basis of conception of gas-like aether”** by Vladimir A. Atsukovsky. 2<sup>nd</sup> edition, M., Energoatomizdat, 2003;  
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# On Velocity of Drive-Free Motion

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**Editorial:** We publish a summary of the article. The original text you can receive from the authors.

*A drive-free system made on the basis of a planar mechanism is described. The experimental results on average velocities of the drive-free propulsive system are presented in a scaled view.*

During usual motion, a system is repealed from the surface in the case of its motion on a plane or from the medium when it moves in a resistance medium. This kind of motion is achieved by using a drive mechanism. In contrast to the usual motion, the drive-free propulsive system moves due to interaction of a body of a system with another body of the same system. Sometimes such machines are called inertoids [1] or vibration propulsive devices [2]. To produce such kind of motion it is sufficient to provide anisotropy of the resistance force [3-5] or asymmetry of the internal force [6]. One of the simplest ways to do it is to use a simple two-link planar mechanism. A device for such a motion is shown in Fig. 1.

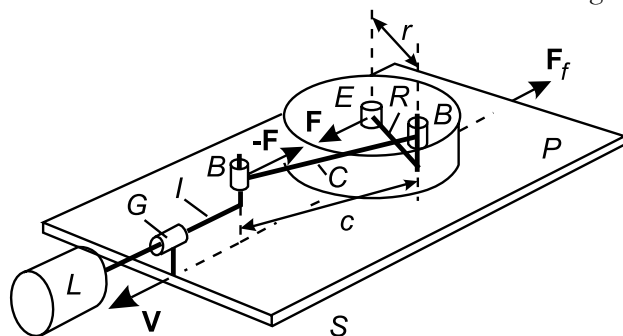


Fig. 1

Experimental device

This device with a total mass of  $M+m$  consists of a platform P on which an electric motor E rotating a drive rod R of length  $r$  is mounted. This is only one part of the planar mechanism. Another link is the connecting rod C of length  $c$  which connects the unbalanced load L and the drive rod R by means of two bell bearings B. The unbalanced load L of mass  $m$  on the rod I slides in guide G. The basic distinction of this mechanism is in that this variant of drive-free machine allows us to analyze the experimental data on average velocities of

motion. Actually the only forces, which act on the platform and are collinear to the moving direction, are the force  $F$  caused by vibrations of the load L and the frictional force  $F_f$ . The platform starts to move when the force acting on the platform becomes greater than the frictional force.

Let us discuss possibilities of the real propulsive system shown in Fig. 1. Measurements were made at  $r=0.01$  m and at three mass ratios  $m/M$ . The values of frictional coefficients were measured for each parameter of the system and vary from  $k=0.25$  to  $k=0.4$ . The system starts moving when theoretically the drift does not take place. When motion becomes reversible, the velocity of drive-free drift does not decrease.

Thus drive-free motion is possible even if the frictional coefficients are very small. When increasing the frequency of vibrations velocity does not decrease. We can not discuss the existence of some third force acting on the platform (we can suggest the existence of frictional force  $F_f$  and the internal force  $F$  caused by vibrations). Let somebody else take the liberty of making such a conclusion!

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# ELECTROMAGNETIC SELF-ACTION

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*The torque of a self-action exerting on the mobile part of the reactionless engine is measured. It is shown that there exists a value of the height of the mobile electrode at which the torque of self-action is maximal.*

There is an opinion that a body can not act on itself [1]. The existence of the so-called force of self-action is believed to contradict to the law of conservation of momentum. This is nothing but prejudice. Though the experimental confirmations of existence of self-action [2-4], conventional science is ready to refuse modern electrodynamics and make up a new theory of electromagnetism [1, 5] in order to save Newton's third law in use. It is comprehensible. First of all, these are the theoretical [5] and experimental [3] errors. The equivalence [5] of the Biot-Savart force is mathematically coarse since in this case the highest terms of expansion of force of self-action are cast out. This equivalence violates law of action and reaction and Ampere force law for which the principle of equality and collinearity of action and reaction forces is valid. Non-linearity of dependence of the torque of self-action on the current intensity [3] makes us doubt in the validity of these results. Moreover, typical values of force [2, 4] and torque [3, 6] are too small even if direct current in the circuit is significant. It is required to pass through the direct current of hundred amperes to produce the considerable displacement or turn of a body. As a result, small values of the effect caused ambiguity in the explanation of the phenomenon [1].

In fact, searching the reactionless propulsive devices we usually forget about the magnetic self-action which arises when a body consisting of a magnet and incomplete electric circuit can move violating law of action and reaction [7]. This violation is proved theoretically [8] but peculiarities of this motion are not well discussed. The principle of such a motion is shown in Fig. 1. This is the magnetic interaction between two current elements one of which is a part of a closed circular loop  $L$  and another is perpendicular to the first one. Since the force  $d\mathbf{F}_{jm}$  acting on any current element of the loop  $L$  is perpendicular to the density of current  $\mathbf{j}_m$  then the  $Z$ -component of the torque  $d\mathbf{N}_m = [\mathbf{r}_m \times d\mathbf{F}_{jm}]$  is equal

to zero while torque which exerted on the second current element by the magnetic field of the loop, does not.

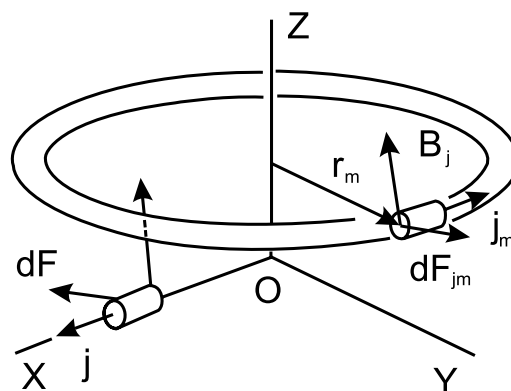


Fig. 1

Violation of law of action and reaction.

The force  $d\mathbf{F}_{jm}$  with which the magnetic field  $\mathbf{B}_j$  of another current element acts on the current of density  $\mathbf{j}_m$ , is not equal nor opposite to the force  $d\mathbf{F}$  with which the magnetic field  $\mathbf{B}$  of the first current element acts on the current of density  $\mathbf{j}$ .

An experimental device is shown in Fig. 2. A commercially available ring-shaped carbon-steel magnet  $\mathbf{M}$  (inner radius – 20 mm; outer radius – 55 mm, height – 25 mm) of  $2.2 \times 10^5$  A/m magnetization is located on the cover of a cylindrical electrode  $\mathbf{E}$  suspended by thread  $\mathbf{T}$ . The electrode  $\mathbf{E}$  is furnished with a central electrode  $\mathbf{C}$  of the same height  $h$  and 5 mm diameter. The radius of the electrode  $\mathbf{E}$  is 130 mm. The open end of electrode  $\mathbf{E}$  and the central electrode  $\mathbf{C}$  are submersed in a conducting liquid  $\mathbf{L}_+$  and  $\mathbf{L}_-$  placed in two volumes of a vessel  $\mathbf{V}$  so that the depth of submergence of these parts is about 5 mm. In this experiment the conducting fluid is 10% solution of copper sulfate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ). The vessel  $\mathbf{V}$  consists of two thin coaxial plastic cylinders of 2 mm thickness. The radii of the plastic cylinders having the common bottom are equal to 10.5 cm and 18 cm. The height of the vessel is 12.5 cm. A disk and a ring-shaped electrodes  $\mathbf{S}_+$  and  $\mathbf{S}_-$  of 1.5 mm thickness are placed on the bottom of the vessel to supply the direct electric current of intensity  $I$ . All conducting parts of the device are made of copper. The thickness of the electrode  $\mathbf{E}$  is 1.5 mm.

When the direct current  $I$  of density  $j$  flows through the electric circuit, the magnet and the electrode  $E$  rotate in the direction of the magnetic force  $d\mathbf{F}$  which is proportional to the vector product  $[\mathbf{j} \times \mathbf{B}]$  as shown in Fig. 2. This is a force of self-action by means of which the mobile part of this device consisting of the magnet  $M$  and the electrode  $E$  acts on itself. However there is no force of reaction which could cause such a rotation. This is really true since a ring-shaped magnet is equivalent to two cylindrical surfaces with the surface current of density  $j_m$ . The force of self-action  $d\mathbf{F}$  acting on the cover of the electrode is compensated by the force of self-action  $d\mathbf{F}_*$  acting on the cylindrical part of the electrode  $E$ . Magnetic induction field  $\mathbf{B}_*$  "does its part" as shown in Fig. 2. Therefore, it would be appropriate to find out how the height of the electrode  $E$  influences the value of the torque  $N$ . Such an influence is demonstrated in Fig. 3.

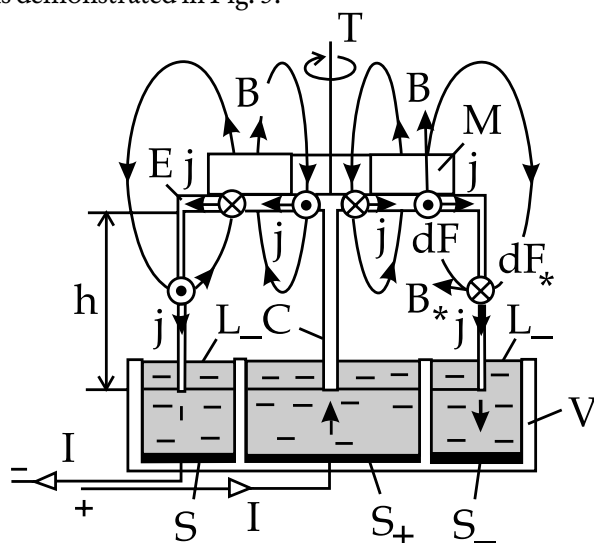


Fig. 2

Experimental device

(•) and (x) – directions of magnetic forces acting on various parts of the mobile electrode  $E$

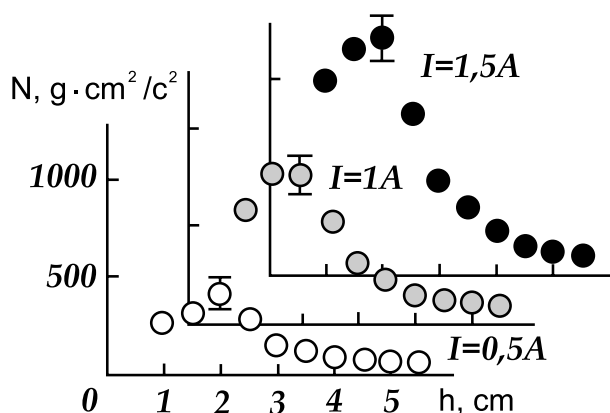


Fig. 3

Dependence of the torque  $N$  on the height of the electrode  $h$  at various values of the direct current  $I$  in the circuit

Thus there exists the value of the height  $h$  at which torque of self-action is maximal. This is the first result of the present work. At  $I = 1\text{ A}$  and  $h = 2\text{ cm}$  the electrode  $E$  turns at angle of 2.2 radian ( $126^\circ$ ) with respect to the equilibrium position. Such a turn corresponds to  $3.4 \times 10^2 \text{ g} \cdot \text{cm}^2 / \text{s}^2 \cdot \text{rad}$ , i.e. to the constant of torsion of the thread. The second result is that the maximum value of the torque of self-action  $N$  at the current  $I = 1\text{ A}$  is even larger than the value of the torque produced by the traditional unipolar device [3] at the current 50 A.

In fact, this work represents an attempt to draw attention to a more effective and simple practical application of the self-action. It remains only to transfer electric current in an unclosed electrical conductor and such a possibility really exists.

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# Uranium Photoaccumulator

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Photoaccumulators are galvanic elements consisting of two communicating vessels, one of which is exposed to light and another is kept in darkness. Ionic composition of electrolyte, which fills these vessels, depends on intensity of illumination. If an inexpensive electrode is placed in each vessel, then a potential

difference will appear. If the electrodes are closed at external working resistance the electron stream will begin to equalize ionic composition and the difference in illumination intensity will tend to disbalance it. As a result, a certain working mode will be established which will allow to utilize the photoaccumulator for production of industrial electrical energy. As distinct from the solar battery, which works while exposed to the light, the photoaccumulator stores some part of solar energy in its electrolyte which is supplied with electrical energy after sunset too.

The idea of photoaccumulator is not a new one. It was established in the end of 19<sup>th</sup> century that it is feasible to create a photoaccumulator containing electrolyte made of the following mixture:  $\text{Fe}^{2+} + \text{Hg}^{2+} = \text{Fe}^{3+} + \text{Hg}^+$

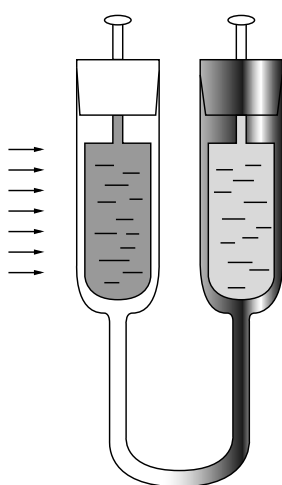
This photoaccumulator was not adopted in practice because of high toxicity of the electrolyte and very low EMF (approximately 0.018). Development of technology is accompanied by a widening range of materials and matters which can be used in large scale production and power industry. Among such materials are, in particular, titanium, depleted uranium and rare-earth elements. Nuclear power industry uses U235 isotope only. Naturally occurring compound contains only 0.72% of U235. Hundreds of thousands of U238 from which U235 has been extracted are kept as useless stock.

In the end of sixties in one of radiochemical laboratories of LINP (Leningrad Institute of Nuclear Physics) P.N. Moskal'ov repeated the same experiment over a long period of time. In the morning he placed a tightly closed retort filled with uranyl-chloride soluted in compound of water, spirit and hydrochloric acid on the window-sill. The solution in the retort changed its color from yellow to emerald-green. Before leaving the laboratory Moskal'ov removed the retort with green solution from the windowsill to a closed chest. In the morning Moskal'ov retrieved the retort with the solution (which was already yellow) from the chest and placed it on the sill. The solution became green again and the whole process repeated daily.

Chemical processes in uranium electrolyte are rather complicated: first, under the light influence the uranyl ion oxidizes ethyl alcohol, which is then transformed to aldehyde:  $\text{UO}_2^{+2} + \text{C}_2\text{H}_5\text{OH}^+ = \text{U}^{iv}(\text{OH})_2 + \text{C}_2\text{H}_4\text{O}$ .

In the dark ions of uranyl-4 interact with aldehyde and are transformed to  $\text{UO}_2$  uranyl ion and spirit again. Thus, **this cyclic process can take place over a significant period of time being supported by the energy provided by light quanta of visible light which are transformed into the heat.**

The idea of utilizing this process in order to obtain electrical energy emerged in the late nineties. The mechanism of uranium photoaccumulator is very simple (Fig 1): two glass vessels, one



made of transparent glass and another of non-transparent glass, are connected with a black acid-proof rubber tube. The communicating vessels are filled with aqueous electrolyte containing 40% of spirit, 80-100 g/l  $\text{UO}_2\text{Cl}_2$  and 0.2 m HCL. The electrolyte is previously activated by multiple cycles of exposing it to light and then placing it in darkness in order to obtain a significant volume of aldehydic fraction. The major difficulty of designing uranium photoaccumulator is connected with the choice of the material for electrodes. In galvanic elements carbonized platinum electrodes are usually used. For practical use platinized titanium gives the best fit. Titanium foil covered with superfine layer of platinum

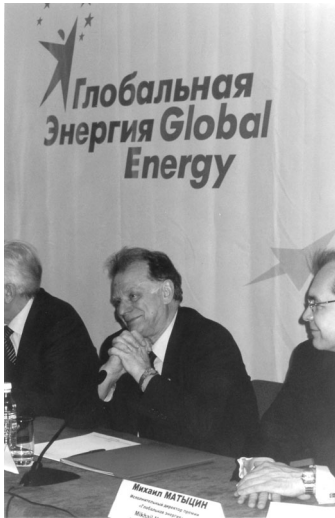
is currently widely used in electrochemical industry and is procurable.

In the transparent vessel the titanium petal-shaped electrodes are parallel the light flow, so the light quanta move freely through the solution.

In working condition each photoaccumulator produces 10 mA of current at 0.3 volt voltage, so they are to be connected in large batteries, both in series and in parallel.

It is also necessary to consider the aspect of safety. Until now, the depleted uranium has been used for one purpose only, namely, for manufacturing of cores for armor-piercing shells. When used in this manner, the uranium is pulverized, which leads to environmental damage. The battery of photoaccumulators is placed in hermetic metal chest; the front panel of the latter must be made of solid safety glass. Such a system will protect the photoaccumulator battery from malicious intent and the security staff from weak uranium radioactivity.

# International Prize on Power Engineering “GLOBAL ENERGY”



**Zhores I. Alferov**

**Nick Holonyak**, Professor at the University of Illinois (USA), was awarded for “fundamental contributions to the development of power silicon electronics and invention of the first semi-conducting light-emitting diodes in a visible part of the spectrum”. Thyristor invented by Holonyak allows the transformation of direct current into alternating and vice versa, to direct this process, to store and accumulate energy. This device is used for every electric locomotive, for frequency transformation. Such devices help to save significant amounts of energy, thus, about 30 percent of all energy produced in the world is processed through thyristors.

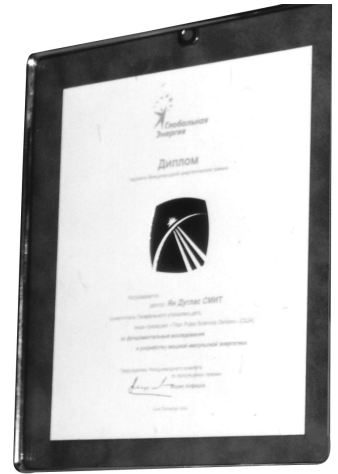
Nick Holonyak’s other invention, i.e. semi-conducting light-emitting diodes in a visible part of the spectrum, has led to development of a new field of the modern power engineering. Supposedly, efficient and safe light-emitting diodes will replace daylight lamps in the next ten years.

“Although Nick Holonyak’s invention dates back to the end of the 50ies of the last century, it remains current”

International Prize “Global Energy” was first presented in St. Petersburg on June 15, 2003. The bonus fund of \$900,000 was shared between three scientists “whose work has been and is still important both to the last century and future research”, said Zhores Alferov, Chair man of the Global Energy Prize Award International Committee.

said the Chairman of Expert Commission, Academician Vladimir Fortov. “This is one of the key inventions leading to the search of new ways of sustainable energy saving”.

**Gennady Mesyats**, Academician of Russian Academy of Sciences, and **Ian Douglas Smith**, Senior Scientist at The Titan Pulse Science Division, were awarded for giving birth to a new direction in the field of power engineering, i.e. power pulse energy. Due to their research, commutation of high-level currents at megavatt levels of voltage has become possible; a number of powerful current choppers have been created, furthermore, there have been developed transformer constructions which allow avoiding energy loss in power transmission lines. These research and innovations resulted in the creation of a number of unique pulse power machines and devices widely used in Russia and abroad (“Aurora”, “Helia” (USA), “Sinus”, “Gamma”, “Maus”, “Pik” (Russia) and others).



**Diploma of Global Energy Prize laureate**







# Teleportation

Review prepared by correspondent Alla Pashova, Russia

For conventional science, the term “teleportation” is not worthy of serious consideration unless ascertained by compulsory “quantum” teleportation. Thus, teleportation is unconditionally referred to microworld phenomena and, in fact, comes to distant information transfer. Spatial transference of a macroobject of definite mass has been excluded.

## Teleportation of states

What does **quantum teleportation** mean? During active development of quantum theory, in 1935, the so-called EPR-paradox (Einstein-Podolskiy-Rosen paradox) was formulated in the well-known work “Can quantum-mechanical description of reality be full?” written by Albert Einstein, Boris Podolskiy, and Natan Rozen.

The gist of the paradox is as follows. There are two particles interacting for some time, thereby forming a common system. From the position of quantum mechanics, this coupled system can be described with a certain wave function. When interaction is over and particles scatter within arbitrarily large distances, they still will be described by the same function as before. At that, state of each separate particle cannot be known in principle that is apparent from uncertainty relation. Only when one of the particles enters a receiver, which records its parameters, the relevant characteristics of the other one emerge (exactly emerge, but not become known!). Thus instant unlimitedly distant “transmission” of quantum state of the particle is possible. Therewith, teleportation of the particle itself and transference of mass do not take place.

Einstein and his colleagues believed that existence of such particles predicted by quantum mechanics prove theory incompleteness. Thereof, the scientists inferred the necessity of other parameters (besides wave function) to describe quantum states. Otherwise, from the local viewpoint, correlations between elements of such a system could not be understood. It was far much later, when Bell showed that some of measurements could define these correlations and exclude any local hidden parameters. It was not until early 1980-s that famous experiments were performed finally eliminating a possibility of local hidden parameters.

In 1980, Alan Aspect experimentally proved that EPR-paradox in quantum world takes place indeed. Special measurements of state of EPR-particles indicated that EPR-pair not only has a common origin, but in addition, that one of the photons somehow “get to know” the way the second one was changed. In further experiments, existence of EPR-paradox was affirmed, even if particles of EPR-pair were removed from each other over a distance of 10 kilometers or so.

In 1993, Charles H. Bennett and his colleagues worked out a method to transfer the quantum state of some object of the microworld to another quantum object by means of EPR-pair and called this method “quantum teleportation”. In 1997 a group of experimentalists under the direction of Anton Zeilinger for the first time implemented quantum teleportation of the photon state in the University of Innsbruck.

In such a way, researchers keep on improving the process of quantum teleportation. In 2001 Danish scientists managed to link gas particles spaced at a substantial interval from each other, by transmitting information about quantum state from one particle to another by means of laser. The quantum teleportation between two gaseous clouds were attained by Eugene Polzik and his colleagues in Orkhus University. They succeeded in coupling about million of cesium atoms, whereas the previous record was only four atoms.

Scientists of Australian National University destroyed a laser beam and nearly instantly recreated it in another point in space; in other words, they teleported photons of the laser beam. In contrast to previous similar experiments, the physicists managed to obtain the required result in 100 percents of cases. Ping Koy Lam, the head of the task group of Australian University, claimed that the first atom of solid substance was likely to be teleported within near three to five years. However, as most scientists admit, a task to teleport a human remains almost impracticable. Even teleportation of atoms, as compared to that of photons, is much more complicated process. It is even harder when dealing with molecules. It is basically possible (though practically very difficult) first to transfer a molecule to a minimum-energy state (ground state) causing it to radiate a certain

sequence of photons. These photons will find themselves in a certain superposition containing all the “quantum” information, which was available in the molecule. Thereafter, it is possible to teleport photon states by means of EPR-pairs. Moreover, it is also required that the classically measured information about a molecule. If molecule of minimum-energy state is present in the receiver, then this molecule, by interacting with teleported photons in a required order, will transform to the quantum state identical to that of the initial one. Consequently, the quantum state of molecule of a certain material will be transmitted, actually with velocity of light. When that happens, the quantum state at the transmitting side will be destroyed.

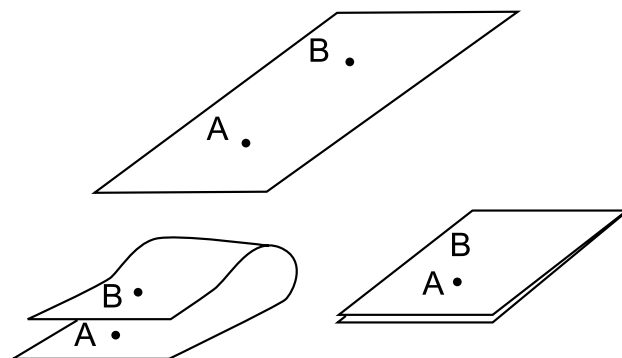
The human organism comprises about  $10^{27}$  atoms. To save and transmit information on properties of that number of particles seems to be practically unachievable. “Theoretically, nothing prevents us from doing that, but complexity of the problem is such that now no one seriously thinks about the solution” – states Ping Koy Lam.

Being a method of information transmission, quantum teleportation has found its application in quantum computers, whose information is stored in the form of a set of quantum states. Impossibility to wiretap and copy transmitted information is considered to be an advantage of such computers. Those researchers, who, nevertheless, wish to answer the question of “How to teleport matter, but not its state?” have to seek for more perspective theories and techniques.

### ***Teleportation of material objects***

Those people, who really want to realize instant spatial transportation of objects, i.e. teleportation, should refer to studying properties of Space and Time. Quantum teleportation has a certain finite velocity that cannot exceed that of light. The genuine teleportation assumes that an object should set off from a starting point to a finishing point (these points differ by a certain distance  $X$ ), at that the transference time comes to zero. The object to be teleported is not changed or taken to atoms to be gathered later at a distant point of space according to information transferred to this point. (Fig1).

The object disappears from one place and simultaneously appears in another place. How is that possible? A body will disappear from point A and appear in point B if to bend space in such a way as to let point A and point B coincide. Then the object will instantly appear in point B since there is no interval between points A and B. Teleportation could be realized by a device, which would make it possible to superpose points A and B.



**Fig. 1**

Space is supposed to be unbendable without enormous energy consumption. However, Alexander V. Frolov points out that this issue is not so unambiguous: “Normally we consider space in connection with “natural” course of time existing in it. That is some degree of space curvature. Let us assume that it can be changed. The space curvature can be considered as acceleration or deceleration of time. Acceleration always demands, for instance in mechanics, some energy consumption. But if we “decelerate” time, energy is liberated and it can be accumulated for subsequent use”.

K.Z. Leshan suggests surrounding a transferred object with a closed surface consisting of vacuum holes. Inside such a “hole sphere” there is geometry similar to that of a black hole. This place is absolutely isolated from the external Universe. No radiation is able to penetrate through the hole in space and time. For an observer, who is inside the hole sphere, the distance between sphere center and its border is infinitely large, since spatial metrics is ever-varying from the center to the border. Distances between the points is continuously shortened so that the distance between any couple of points comes to zero at the very hole surface. A matter transmitter can have inner or outer hole surface. In the first case a teleportation station has a spherical chamber to place the object. Equipment to produce holes should be located upon the outer side of the sphere. Such a station is capable to provide hundreds of launches a day by instantly expulsing spaceships to deep space over distances of millions of light years.

### ***From microcosm towards macrocosm***

**Simeon Bocharov** (member of Chemistry and Biochemistry Department, University of Delaver, Newark, USA) considers teleportation phenomenon using microobjects as an example and applying an interesting conception of protomatter.

In S. Bocharov's opinion, many paradoxes of the present-day science could be solved under condition of considering the whole existing matter to be a single continuum, i.e. protomatter. At this approach, the microcosm objects are not independent ones, being represented in the form of distortions of the very continuum and its manifestations here and now. Protomatter, whose distortion degree is beyond modern possibilities of detection, corresponds to vacuum. In the present-day paradigm redistribution of protomatter distortion corresponds to motion of particles. The important peculiarity is a refusal of such concepts as structure, dimensions, mass and other macroscopic characteristics with respect to microcosm objects, since here they are not considered as separate entities.

For experimental justification of his theory, S. Bocharov suggests to consider teleportation of microobjects incorporated in fullerenes under low temperatures and pressure.

As a basis for reasoning he takes the fact that identical or similar conditions, whereon distortions are located, bring them to the state of identical or similar by lability/diffuseness. And vice versa, distortions, which are similar by lability/diffuseness, influence their near surroundings, creating, as a result, similar macroscopic states. In such a case protomatter distortion (in some spatial domains and under similar conditions) will cause appearance of similar distortions in another domain, whose degree of removal depends on presence of other distortions and their characteristics. In other words matter will be teleported from one spatial domain to another.

Possibility to realize teleportation of microobject causes the well-known phenomenon, which is nowadays described as embedding of particles into inner hollows of spheroid fullerene molecules without reacting with them. As object of teleportation there can be used distortions classified as elementary ones, such as hydrogen, helium or stable matters (noble gases). In both cases the influence of objects upon surroundings is minimized.

The researcher believes that in case of successful experiment, new pattern of matter structure will be confirmed, and valuable teleportation of microobjects (with prospects of such possibility for macrocosm objects) will be demonstrated.

One more approach to teleportation of physical macroobjects was considered in the work "Practical application of time rate control" (New Energy

Technologies No. 3, 2001) by Alexander V. Frolov. It is assumed that density of space (aether) energy determines rate of passing of any processes including the very process of matter existence. Changes of aether density (increase or decrease) must result in the emergence of a force analogous to that of buoyancy, though acting towards the fourth dimension. This "chrono-motive force" (CMF) is also an analogue of electromotive force (EMF) and can be generated by analogy with electrodynamics. According to Alexander V. Frolov, laws of quantum mechanics as to discretization of levels of energy of material system, which exist in the domain of increased or decreased aether density, are valid in the macrocosm as well. Teleportation (as a transition from one state of the system to another one) can be studied with electron transference from one orbit to another as an example with the only difference that for the teleported object not only its location, but also the very spatial properties are changed. In aether of different density (after discrete transition) the same object will have different space around it, wherein time is decelerated or accelerated. Experiments of this field have already been in development stage.

Therefore, modern theoretical physics has handed the problem of teleportation to researchers-experimentalists, who possess sufficient breadth of mind. Perhaps, using teleportation technologies, they will manage to fundamentally alter the process of space exploration and raise our civilization up to radically new development level.



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# “Mass defect” in Home Conditions

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The idea to conduct experiments on “mass defect” demonstration appeared after a cycle of seminars, which took place in 1993-1996 at the Moscow Aviation Institute under the direction of V. I. Patrushev, Doctor of Technical Sciences, Professor of “Designing of aerohydrodynamic systems” Department (the author of the article is also a graduate of the Department). At the seminars, an enterprising group studied and developed an applied theory of “Displacing fields” by Alexis V. Murlikin and an associate “Theory of energy exchange processes”. Later the group was called **“Group studying non-inertial transference”** (non-inertial natural processes).

The experiment was aimed to test some theoretical suppositions, namely, that it is possible to influence on existent energy flows which input and output to the matter. At that the simplest way to influence indirectly is to change the medium the flows come through. In general, optic experiments on luminous flux refraction show the same. But light refraction and change of speed of light propagation at passing through different mediums is one thing; and change of mass of a material body is something new that has not ever been dealt with. Moreover you can consider light (i.e. electromagnetic radiation) to be the secondary manifestation of output energy flow. Besides mass defect is very important for nuclear physics because it “helps” to develop this branch and stimulates drawing “energy dividends” in splitting reactions, decay reactions and nuclear fusion reactions. But unfortunately we can not touch element nucleus and even million nuclei while we can easily touch metallic balls of 1 gram weight.

Let us note that a concept of mass is one of the most uncertain in physics. We can not measure mass directly. It is possible to do it only indirectly, by gravity, using scales (it does not matter what kind of scales are used), or by kinetic momentum (in this case mass is a measure of inertia) by means of dynamometers.

**Thus it is evident that change of WEIGHT shown by scales is not MASS change as measure of matter**

**quantity.** Since one of the most important points of the theory of “Displacing fields” is creation of a vehicle of new generation, then one of the major tasks is to overcome gravity (to decrease weight). And this “home experiment” shows the way to solve it. However we can call it “home” only in part, because for weighing there were used electronic scales (mass-comparator with measurement accuracy of 0.1 microgram. (See Fig. 1).

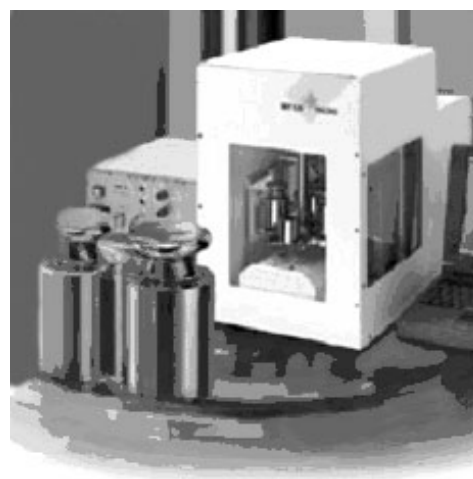


Fig. 1

Precision scales METTLER TOLEDO allows making:  
High-accuracy weighing in the range  
from 0.1 microgram to several tones  
Measurement with resolution up to milliard points

Two sets were designed for weighing. The first one had an aluminum (Al) ball-kernel which weighed 1 gram and a lead (Pb) casing-shell consisted of two parts (half-spheres) which also has weight of 1 gram. The second set had on the contrary a lead kernel and an aluminum casing. The sets were disassembled and then hermetically assembled to make a single device with no gaps (See Fig. 2).

Since it had to be done with great accuracy and it was a piece article, not a Moscow product company undertook to produce it. And only one of the students, Nicholas Sorokin, a young boy with skilful fingers, had

helped. He invented a technology which allowed making balls of the necessary size at home conditions. He was literally pickling every micron of metal with acid and finally got the necessary size and weight.

So, the weight of a non-assembled set was: 1 gram (weight of kernel) and 1 gramm (weight of shell). Weight of an assembled set, according to the "Theory of energy exchange processes" by Murlikin, is not equal to the simple sum of the non-assembled components, and mass defect would be different for various sets right up to the change of sign.

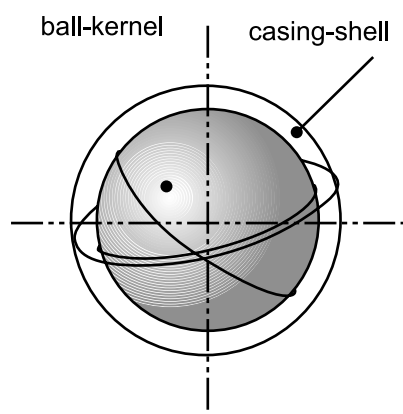


Fig. 2

Set of experimental balls

More than 50 experiments was carried out on weighing for every set. Assembled sets as well as non-assembled sets were weighed. **It was confirmed that there was an interaction between input and output flows for MATTER MAINTENANCE. It became apparent in the form of mass defect. Defect appeared in the sixth sign, i.e. it comes to the range from 0.0002% to 0.0007% of "kernel" mass (or "shell" mass). At that the lesser mass defect corresponds to aluminum shell, while the greater one corresponds to lead shell. Accuracy of weight**

**measuring by the mass comparator exceeded the acquired result by 10 times. So we could not tell about inaccuracy of measurements.** So we had to apply to the "Russian center of testing and certification" which was very famous all over the world (Rostest-Moscow).

In general that is all, we have got an answer for ourselves, and the period of testing is behind. We have to advance; very much is still to be done. In addition let us mention one more surprise we got during the experiments. The matter concerns some time delay in receiving final results of every weighing. A qualitative picture of it is represented in Fig 3. We did not expect that this effect would appear at such a rough level of measurement of energy exchange processes.

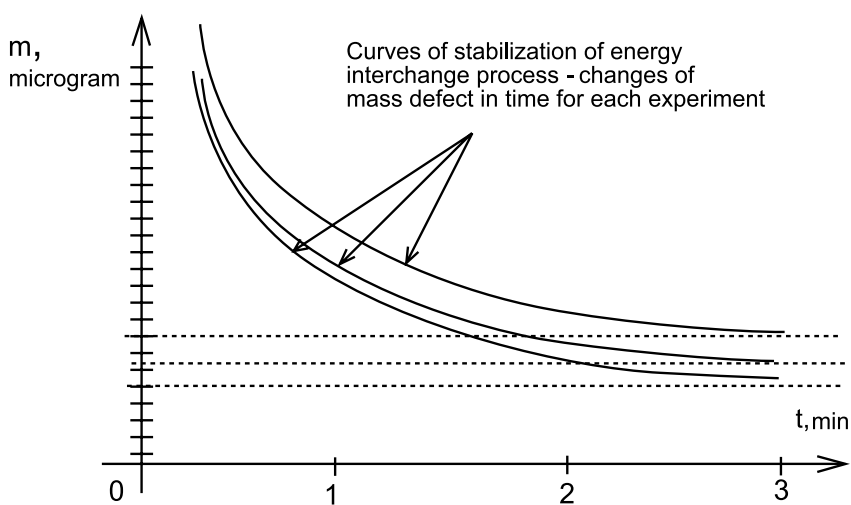


Fig. 3

Time stabilization of the process for receiving final weight

The subsequent report and detailed discussion of the experimental results by specialists (including physicists of various specializations) resulted in an unexpected non-recognition of facts and distrust. The main argument was a demand to increase the number of experiments up to 5-10 hundreds. And only then scientists would be ready to accept facts. It was quite a predictable reaction for the orthodox science in the middle of 90s. It remains to hope that if the discussion took place today it would have a paved way. However it is not a fact.

In conclusion let us note that this experiment on revealing mass defect ranks with famous experiments, in which rotating gyroscopes also demonstrate mass defect (decrease of weight) and even one of higher order than in our experiment. But in return we have no rotation, no chemical and nuclear reactions, while mass defect is presented.

Let us add that it is possible to complicate the task: to make a double casing and to choose other materials for "kernel" and "shell". (See Fig. 2). In our case low prices and availability made us use Al and Pb. The results will be more interesting, for example, with Li and Os (and with other supertransuranic elements).



# Aether as Unified Field

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Based on the original observations and experiments, the article gives more precise definitions of aether model, than which was previously elaborated. General laws of the Universe aetherodynamic are considered. There is described a new physical reality in the form of quasi-real aetherodynamic structures (“topological harmonics”) generated by dynamics of the substantial world.



At the present-day stage of physics development words of Maugham, an English philosopher, take on particular topicality: “The great verities are too important to be new”. Indeed, we are increasingly making certain that our remote ancestors were familiar with fundamental laws of the Universe; furthermore, they knew these better than we do. But which methodology of cognition of Nature and what kind of information sources did the ancient scientists have? Today, we can openly say: they had not ordinary experience only, but also esoteric, pretersensual one, without feeling any necessity to be divided into materialists and idealists. For more details on evolution of physical ideas, refer to work [1].

In discovering all over again, I also had to elaborate a “cellular taction” strategy, which enables the most important characteristics of aetherodynamic processes to be sensually perceived and evaluated. The main thing is that all my sensory observations are definitely reproduced at laboratory experiments while the simplest physical equipment is used.

We may get reliable knowledge about Nature from Nature itself only. Thus foundation of classical physics describing usual substantial world is also based on empirical facts studied by Galilei, Newton, Faraday and many other physicists-natural philosophers. I also would like to defend great Newton against attacks on his adherence to inductive methods which really brought imperishable values into science.

A new convolution of cognition is possible on condition of introduction into science of new concepts based on empirical study of physical entities previously unknown. Thereupon, I share the thought of Elena Ventzel, professional mathematician: “Mathematical methods are not useful, but harmful until phenomenon is not studied at a pre-mathematical, humanitarian level”. It is ideological and logical language that may be used today to discuss the aether problem, whose solution calls for comprehension of natural-science facts, which are beyond traditional notions settled over centuries.

The long-term investigations have confirmed that exhaustive definition of a fundamental natural entity was given by Rene Descartes: “Universe does not contain anything but aether and its vortexes”. This is not merely a postulate; this is an objective summary of empirical observations of Nature phenomena. In any academical model of microcosm there is no answer to the question: what kind of substance are electrons, quarks, strings made of? That is the very substance our forefathers called aether. Aether is unified field indeed; and it appears that for nearly his whole life Einstein had been searching for something that was under his foot.

It must be recognized that there is no undistorted, quiescent aether in Nature; as well as no zero-size vortexes exist. Therefore, in a customary sense, the aether concept is pushed behind transcendental horizon and turned into an inconceivable entity whose mystique is tantamount to religious ideas. However, all quantum vortex-wave distortions of the superfluid three-dimensional aether, which have an appearance of tori, threads, solitons and occupy spatio-temporal spectrum from zero to inter-universe scale, are material and contain energy under scientific interpretation. Any spaces such as turbulent fields, physical vacuum, gravitational fields and, of course, matter are material. All of them are etherodynamic structures of the real world. Spatial hierarchy of aether vortices is referred to as quantum stairs, fractal structure or “matreshka” [2-5].

To understand basic laws of aetherodynamics it is necessary to give a general definition for classical matter

and other aether states. As a first approximation, let us give the name of matter to aether microscopic **left-screw** self-oscillating vortex-wave systems (elementary particles), whose existence and parameters are conditioned by higher hierarchical systems. This is our displayed world, with its electromagnetic fields and fundamental constants. Let us refer to vortex-wave structures of any vortex size, which in the considered space domain are **balanced** by a number of left- and right-screw vortices corresponding to matter and antimatter with prefix “quasi” to a free aether. Stable vortex lattices with alternating direction of helicity can be also considered in this case. Under natural conditions everything but classical matter or electromagnetic and gravitational fields can be related to the free aether. In the first place, these are the so-called physical vacuum and vortex fields, which attend gravitation. They represent anisotropic nonlinear subspaces and occupy definite places on spatio-temporal spectrum of the world aether. Particular free subspace creates an aggregate of topological harmonics [5] attending all the physical processes. Satellite of the gravitational field is distinguished because it belongs to specific class of stable vortex lattices.

Apparently, in general case, energy of free aether is virtual for our world due to its helical symmetry and quasi-matter, from the view of difference in sizes of typical vortices which correspond to protomatter. But this is not the entire point. There is also superfluidity of aether, whose vortex viscosity has marvellous properties. As a result, there are created phenomena of inertia and energy-information barrier separating material world from constant influence of quasi-real structures or turbulated space.

Classical inertia, as vortex viscosity, arises in the microscopic and more fine-structure free aether (in Newtonian space) and ever regularly reveals itself during acceleration of material bodies. However everything is different at stage of macrovortex aether, where inertia has properties of adaptation. Here it is affirmed that inertia phenomenon is “spread” throughout the spatial-temporal spectrum of vortex distortions of aether field. At that nature of inertia is changed. Within topoharmonic subspace in laboratory scales, the inertia law “diminishes” in time according to exponential dependence, whose time constant is determined by specific conditions and varied over wide limits (from seconds to many days). On the expiry of this time, inertial intercoupling transforms to the law of flicker effect. It may be said that flicker effect specify

penetrability of energy and information barrier after expiry of time of paraphysical regular phenomenon [6]. Consequently, most of time the interaction with free macroaether is of random character and should be evaluated by mean observation.

To extend conceptual scope of our investigation it may be added that in classical hydrodynamics a liquid, along with ordinary inertia, has determined vortex macroinertia, which is created by vortices of the liquid itself. Therefore, it is necessary to keep on comparing processes at all levels of the unified field of aether. For instance, electric inductance is a kind of specific inertia, and topological harmonics of electromagnetic and other phenomena are subjected to the energy-information barrier (under laboratory conditions).

In the above arguments, the principle of relativity is latently and unconsciously presented. However, this complicated question needs to be separately considered. Physical nature of the energy-information barrier and reason for dependence of the inertia properties upon the size of vortices of free aether remain unclear, too. However, it can be supposed that classical elementary particles, as distinct from protomatter, have self-oscillating properties and are commensurable with vortices of the surrounding free world; and that the above-mentioned energy-information barrier does not exist for them on microscopic section of the spectrum. The gist of the barrier itself comes to “memorizing” topoharmonic processes by Earth’s gravitational fields and laboratory equipment. Turbulent fields (physical vacuum) do not have such a “memory”.

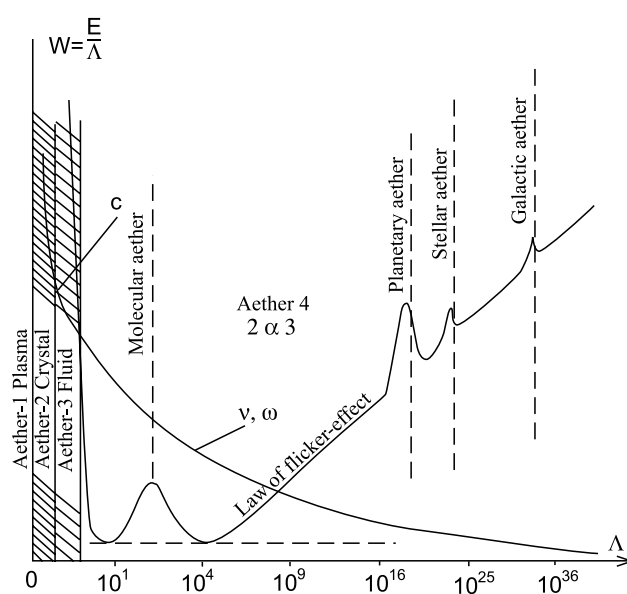


Fig.1

Fig1 depicts diagrams of spectral density of vortices' energy; diagrams of rate of interaction transfer  $\nu$  and circular frequency  $\omega$  depending on sizes of vortices of the world aether  $\Lambda$  (in picometers). As we can see, velocity of distortions propagation  $\nu$  is equal to velocity of light  $C$  in the physical vacuum, i.e. in electron sizes, exceeds  $C$  in nanocosm and tends to zero toward megacosms. Circular frequency of vortices rotation and course of physical time have the analogous qualitative dependence. However, vortices energy  $W$  has a feature and grows toward both ways from the lab scales; the aether numbers have been assigned conditionally, but all the specified phase states reflect some physical reality.

One of the most complicated questions is a definition of vortex matter in each particular case. The diagram demonstrates energy of free aether in the form of protomatter (simplest elementary particles – vortexes), and energy of classical elementary particles as helically definite self-oscillating emissions of aether field is localized in the most nonlinear subspace (physical or substantial vacuum). Unification of the elementary particles into atoms and macrobody does not denote direct transition to parallel world with different fundamental constants, whereas change of vortex size in the diagram exactly implies such a transition, though at a level of protomatter. This is a very intricate and crucial point. For example, a star is, unconditionally, an elementary particle of the relevant level of the Universe, even though comprising the ordinary matter.

Left wing of energy spectrum reflects property of the turbulent field of aether to gravitate, to sink down to the “bottom” transferring energy to the vortices of lesser scales. This phenomenon of distributed “gravitation” is available in every space point and explains a least-action principle. An illustrative analogue of this regularity is represented by the Earth's gravitational field and structure. Dense plasma assumed as iron core is situated in the center, and higher - there are magma, solid crust, water and air. These phase states exist in free aether within universe scales as well. Consequently, in femtocosm, and maybe at an even deeper energetic “bottom”, there must be a plasmic subspace; evidently, it is assignable that aether translated from Greek means “fire”.

Increase of energy to the right is connected with extending a dynamic band of the vortices spectrum, as the scale increases. In our world, this increase follows the flicker effect law, but this is only what we perceive across the energy-information barrier. Actually, at this section the vortex energy must increase well more

strongly, because **our observation capabilities are limited** by accessible matter processes. Turning back to stars, one may affirm that modern science is unable to evaluate their real energy (evaluations are considerably underrated). The Galaxy vortex entrains such deep levels of multidimensional space-aether to its rotation that this causes violation of the Newton's law of inertia. Notion of “hidden mass” is unnecessary for explaining dynamics of galaxies. It is quite enough to take into account that differential rotation entrains the fine-structure aether (inertial subspace), and this process results in decreasing the inertia and external centrifugal forces. Unfortunately, Fig. 1 reflects only a characteristic size of the galactic vortex and does not visually demonstrate its active band of the spectrum. The finer is the space structure, the more inertial and closer to the absolute reference frame is the space. Obviously, the non-homogeneous, stereodynamically multidimensional and multiphase aether requires a perfectly new theory of random fields, which would also make allowance for the phenomenon of the material world.

Energy motion processes or spectral energy-cascades along abscissa axis are of decisive importance for existence of our world and the Universe. These processes have unusual properties. The “violet” cascade is attended with reduction of vortices size, absorption of matter energy and tends to increase energy concentration at the “bottom” of the world aether (near ordinate axis on Fig.1). This regularity experimentally confirmed in both spatial and temporal domains is a direct consequence of the above-mentioned phenomenon of distributed gravitation and clarifies an existence of the left wing of the spectrum. In classical physics “the violet” cascade effect is reflected in the least-action principle as well as in the thermodynamics laws.

The “red” energy cascade (right wing of the spectrum) corresponds to increase of vortices size and is accompanied with energy liberation. To start it up under earthy conditions special technologies are called for [7]. This has been confirmed with laboratory experiments and underlies the “perpetual motion” theory, where energy is pumped from nanocosm to the classical material world. Conception of artificial biofield [6], I have developed, considers methods of creating the aether vortex-wave macroscopic-scale distortions in physical systems. As a matter of fact, we deal with **ways of extending of natural spatio-temporal spectrum of aether (which settled into itself) by creation of a subspace of the topological subharmonics of the classical elementary particles, atoms and molecules**

**(physical bodies), within the context of the etherodynamics fundamental law [5].**

Even within action of fluctuating energy-information barrier, the spectrum right wing exhibits existence of natural processes in Nature that, supposedly, violate the known laws of thermodynamics [8]. But, as far as Nature cannot conflict with itself, we have to recognize that there is another physics, which “works” in geographic and greater scales, where role of the energy-information barrier demands to be reappraised. To all appearance, the universe vortex partially entrains plasmic subspace of aether into its rotation, and conditions for realizing “red” energy-cascade and generating matter are created on the sections of the maximum density gradient (“spectral” non-linearity). But the same way as a fish in ocean does not know reasons for storms and currents, we will never learn which force untwists the Universe handwheel, whose energy feeds our substantial world.

There are two components of free aether field that are the most essential for the present-day physics. The first one (left wing) is positioned on the spectrum beside the “bottom” in the form of dense liquid-crystalline “plasmatic” medium transforming to the Newtonian inertial subspace (physical vacuum). Since inertia is as regular as electric inductance is, the first subspace proves to be especially material and not such free, because it has properties which were imposed by the Universe rotation and distributed “gravitation”. Let us conventionally limit the spatial spectrum of the first component with a nucleon size. The second component of aether space (right wing of the spectrum) stretches towards larger scales.

Except for known cosmic objects, this is an unknown ocean of the macrovortex and really free aether, or topoharmonics, which are born by dynamics of the substantial world. It is an experimentally proven fact that topoharmonics are generated by photons, electrons, and all the moving bodies [5, 9].

The second component has an ability to conversely affect the matter it was generated by as well as other material objects via “flickering” forces [10, 11]. This special subspace turns out to be doubly virtual, a genuine phantom. That is why, it has been winning the status of a real physical entity with such a difficulty, while Chinese philosophers were familiar with the same thousands years ago, separating entities “yang” and “yin”.

The laboratory experiments indicate that topoharmonics have not only properties described in [5], but also an

ability to interact with the space, creating a static domain of the excited aether in the course of propagation of the vortices-waves. At that physical bodies placing within this space volume are “charged” [2, 9]. The mentioned active domain (horizontal route) is “separated” by the Earth’s gravitational field as follows: quasi-substantial constituent rapidly settles down creating vertical flow, but some phase structures are disintegrated very slowly (days, months, years).

The surprising thing is that biosystems equally belong to both aether components, not experiencing any constraint from the side of the energy-information barrier. The so-called human biofield is a topoharmonic part of physical body. It occupies its place on the spatio-temporal spectrum (Fig. 1). Quasi-substantial constituent (yang) and antiquasi-substantial one (yin) are strictly balanced, and acupuncture points and chakras are an analogue of Hartmann’s geophysical grid, which is well-known to parapsychists.

Conceptual generalization of physical ideas in the context of unified field of aether gives a constructive, cognitive impulse in solving of different problems, such as Nature’s choice of exclusive laws for existence of “left-screw” material world as well as the problem of flicker-effect. At that, researching into the physical processes responsible for proton positive charge is of fundamental importance.

In conclusion, let us take note of conventional character of dividing the aether field into two components by the form of energetic spectrum. As a matter of fact, topoharmonics are generated by matter towards both larger spatial frequencies (subharmonics) and smaller ones (harmonics) and fill all levels of the Universe. The aforesaid is aimed at making perception of the most studied aspect of the **new physical entity** (vague due to diversity of hypothetical descriptions which exist in publications on this subject) more accessible.

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Lately, the notion “Global energy” has become widely spread as a prize corresponding to this notion has been instituted in Russia. Since the Euclidean times, an unwritten law exists in science: to give definition to the notions, which are involved in scientific analysis. It is done for the purpose that everybody who uses this notion can understand the sense implied in it.

The Global energy problems have been discussed for a long time; they are well known. Depletion of natural energy carriers (oil, gas and coal) is the first problem. Environmental safety of energy carriers is the second problem. It is generally recognized that the solution of the issues connected with the aggregate of these two problems is of a global character. The results of scientific research, which should deal with global energy, originate from it. First and foremost, they are such scientific investigations, which result in the possibility to use an inexhaustible and environmental friendly energy carrier. It has been known for a long time. It is hydrogen produced from water.

Why hydrogen and why from water? At combustion of hydrogen, water is regenerated; thus, the energy carrier is inexhaustible. As far as inexhaustibility and environmental safety are concerned, hydrogen has no competitors. However implementation of these qualities

is restricted by large energy expenses for hydrogen production from water. For hydrogen production, modern electrolyzers use from 10 to 20% more energy than it is produced at combustion of hydrogen.

It is easy to imagine what financial and intellectual resources of the world are included in the search of the ways to reduce energy expenses for hydrogen production from water. In Russia many scientific institutions of applied research and educational institutions deal with this problem. There is a Research Hydrogen Institute.

The associations of scientists on hydrogen energetics have been established in USA and Europe. This year, they carry out their regular scientific conferences, to which the author of this article has been invited.

*Editorial: Let us note that it is not necessary to coin new scientific term “global energy”, since quite for a long time the notion of “free energy” is used. This term represents the idea of the possibility to freely use energy by a consumer.*

Energy problem is global not due to depletion of oil and gas, but due to their environmental unsafeness. However the confirmations exist that the world owners of energy resources do not bother about the problem of environmental unsafeness of modern energy carriers.

In history of science, the facts of annihilation of the scientists who have won success in reduction of energy expenses for production of hydrogen from water have already been registered. The requesters of these actions think that they will lose their profits with the coming of hydrogen energetics. They do not understand that this process cannot be abrupt. It is impossible to replace the infrastructure of the existing energy carriers by infrastructure of hydrogen energetics within one or even ten years. Besides, infrastructure of hydrogen energetics will not be created on a blank place. It will be integrated into the existing infrastructure of energetics gradually; and its owners will automatically become the owners of hydrogen energetics. The first step has already been made in this direction. In the USA, a decision has been taken to equip all filling stations with pumps to fill the cars with hydrogen.

It is known that a priority of results of theoretical investigations is their publication in press. Usually, such priority is a personal one. Generally a patent is a priority of the results of experimental investigations. As a rule, this patent belongs to a group of authors. A published patent is a genie released from a bottle. No finesse of the authors to hamper a reproduction of experimental data given in a patent without the participation of the authors can stop the process of their implementation. Thus, the authors or a group of the authors who have filed an application for a patent are deprived automatically of the opportunity to influence the process of practical realization of their ideas.

In Russia, the state is a main patent holder of the global patents. Due to the well-known reasons, it has proved to be unable to control the course of scientific investigations and to forecast significance of their results.

It is known that if it becomes possible to reduce energy expenses for hydrogen production of water fivefold, it will be the cheapest energy carrier. Russia has already got technology, which reduces these expenses tenfold and more. However another way of looking is more perspective. Is there any use to decompose water into hydrogen and oxygen and to use hydrogen as fuel for heating, for example, of water in heating systems? Is it possible to make water generate heat? It turned out that, it is possible.

In Russia, three firms ("Yusmar", "Termovikhr" and "Noteka") sell cavitation heating equipment with energy performance index up to 150%. Official science looks awry at this activity, since such results conflict with one

of the main laws of physics: law of conservation of energy. But market profit is stronger than this law.

Meanwhile, engineering practice has already proved that additional energy in the form of heat is generated in the ventilation systems and in the systems of water cavitation. Thorough scientific analysis of this problem shows that physical vacuum is the most probable source of additional energy in the systems of ventilation and water cavitation. Valence electrons of destroyed molecules of water take energy from physical vacuum and release it during repeated fusion of these molecules.

Why is additional energy generated in the air systems of ventilation and in systems of water cavitation? Because they are mechanical systems and mechanical destruction of chemical links requires half energy as compared with thermal destruction of these links. This is the main reason why one fails to increase energy performance index of cavitation processes over 200%.

Certainly, an increase of efficiency of any process by 30 or 50% is a good result; if it is obtained, it is possible to get even better one. But what if a water molecule is destroyed not mechanically, but electrodynamically? In this case, it becomes possible to find resonance frequencies of influence on the molecules and therefore to reduce considerably expenses of electrical energy for their destruction. Subsequent fusion of destroyed molecules will release determined quantity of energy unavoidably. It is a simple idea, and it has already been implemented. At electrodynamic influence on water molecules, electrical energy is converted into thermal energy with tenfold energy performance index. It means that if we spend 1 kWh of electric energy, we will get 10 kWh of thermal energy. To obtain such results, it is necessary to have knowledge of physchemistry of the microworld, which corresponds to knowledge of the 21st century, and it has already been published. Every month more than 1000 foreign scientists become familiarized with this knowledge at <http://Kanarev.innoplaza.net> and <http://book.physchemistry.innoplaza.net>. The Russian speaking readers get this information from: <http://www.n-t.org/tp/ns/if.htm>, <http://www.wikar.udm.ru/sb28-2.htm> and <http://www.n-t.org/tp/ts/eb.htm>.

I hope that now the readers will know the essence of the notion "global energy" and will understand those results of scientific researches which can really solve the related problems.



# Energy Balance of Fusion Processes of Oxygen, Hydrogen and Water Molecules

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*There is revealed the cause of appearance of additional energy during formation of covalent bonds in the fusion processes of oxygen, hydrogen and water molecules, besides the source of this energy is described.*

## Introduction

Engineering practice connected with servicing of ventilation systems allows revealing appearance of excessive thermal energy in circulated air. Similar phenomenon has been registered in systems of water circulation with the devices for its active cavitation. The results of our investigations explain not only a cause of these phenomena, but they give an opportunity to perform quantitative calculations for energy processes, which generate additional thermal energy [1], [2], [3], [4], [5].

## Theoretical part

An oxygen atom is the eighth element of the periodic table. It is situated in the sixth group. The structure of its nucleus is given in Fig. 1 [1], [2], [3].

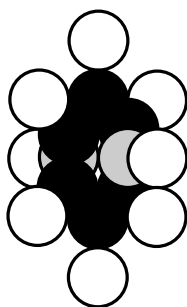


Fig. 1

Diagram of nucleus of oxygen atom: light – the protons, dark and grey – the neutrons

In Fig. 2 a diagram of the oxygen atom originating from the structure of its nucleus is given (Fig. 1). It has eight electrons. The electrons situated on the axis of symmetry are the most active ones (1, 2). Other six electrons situated in the plane, which is perpendicular to the axis

line (a line of symmetry), by means of their total electric field remove electrons 1 and 2 from the nucleus at a large distance at that forming conditions for their large activity during the interaction with the electrons of the neighbouring atoms [1], [2], [3].

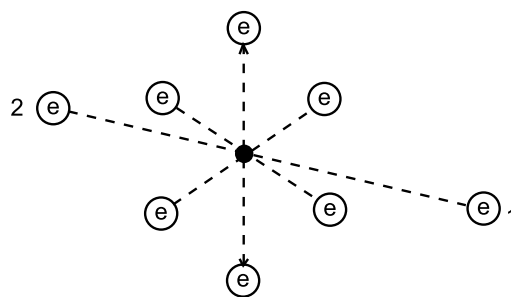


Fig. 2

Diagram of the oxygen atom

The least ionization energy of the electron of oxygen atom is equal to  $E_i = 13.618$  eV. Binding energy of this electron with the atomic nucleus corresponding to the first energy level is equal to  $E_1 = 13.752$  eV. Let us call this electron the first one. The calculation of energy indices of this electron, including its binding energies  $E_b$  with the atomic nucleus, according to the formulas (1) and (2), gives the following results (Table 1) [1], [2], [3].

$$E_{ph} = E_i - \frac{E_i}{n^2} = E_i - \frac{E_1}{n^2} \quad (1)$$

$$E_b = \frac{E_1}{n^2} \quad (2)$$

Table 1

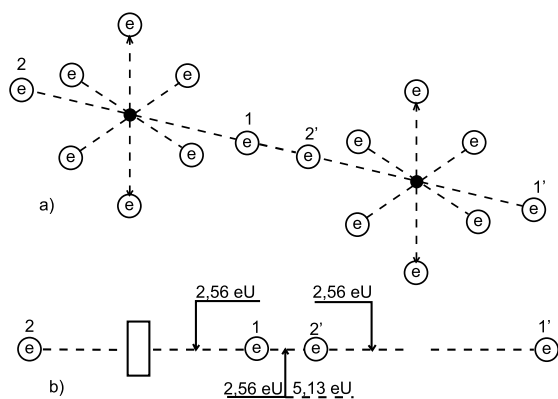
Spectrum of the first electron of the oxygen atom

Values	n	2	3	4	5	6
$E_{ph}$ (exp.)	eV	10.18	12.09	12.76	13.07	13.24
$E_{ph}$ (theor.)	eV	10.16	12.09	12.76	13.07	13.24
$E_b$ (theor.)	eV	3.44	1.53	0.86	0.55	0.38

The oxygen molecule structure is given in Fig. 3, a. It is formed by means of a connection of unlike magnetic poles of axis electrons of two oxygen atoms [1], [2], [3]. It is known that the fusion process of the oxygen molecules is accompanied with a release of 495 kJ/mole of energy, or in calculation for one molecule

$$E_b = \frac{495 \cdot 1000}{6,02 \cdot 10^{23} \cdot 1.602 \cdot 10^{-19}} = 5.13 \text{ eV}. \quad (3)$$

What principle does the Nature follow by distributing energy of 5.13 eV between the electrons of oxygen molecule (Fig. 3, a)? Energy of 5.13 eV is a thermal binding energy between the electrons 1 and 2' of two oxygen atoms (Fig. 3, a). When the oxygen molecule is formed, it is emitted in the form of the photons by the electrons, which enter into the bond. Hence it is equal to an amount of energies of two photons emitted by these electrons. Consequently, each contacting electron emits a photon with energies of  $5.13/2=2.565 \text{ eV}=E_b$  (Fig 3). According to Table 1, in this case the valence electrons are situated between the second energy level and the third one [1].



**Fig. 3**

Diagram of binding energy distribution between the electrons in the oxygen molecule

Two oxygen atoms are combined into a molecule in an excitation state. The excitation state is the state of an atom when its valence electrons are situated at such distances from the nuclei when the binding energy  $E_b$  between them is reduced to the thousandth of fractions of an electron-volt. In such state the atom can loose an electron and become an ion. Otherwise, without loosing electrons it is combined with an electron of the neighbouring atom by the valence electron, and a process of formation of oxygen molecule begins. It is an exothermic process when the axis valence electrons 1 and 2' emit photons, descend on lower energy levels and release  $2.565 \times 2 = 5.13 \text{ eV}$ .

Let us pay attention to the fact that energy 5.13 eV is released by two electrons, which form a bond with energy of  $E_b=2.56 \text{ eV}$ . In modern chemistry this bond is called a covalent bond. In order to break this bond it is necessary to use 2.56 eV of mechanical energy. For thermal deavage of this bond, double quantity of energy is required, i.e. 5.13 eV. It is explained by the fact that the photon energy of 5.13 eV is absorbed by two electrons simultaneously. Only in this case, both electrons will be transferred to the highest energy levels with minimal binding energy  $E_b$  when they are disconnected, and each oxygen atom becomes a free one.

Thus, energy expenses for destruction of oxygen molecule depend on the method of influence upon the bond. During thermal action upon the bond it is destroyed when energy is 5.13 eV. During mechanical effect upon the bond, it is necessary to spend 2.56 eV of energy in order to destroy this bond. Therefore energetic of fusion process of the oxygen molecule depends on method of its destruction.

After thermal destruction of the oxygen molecule process of its formation begins from emission of the photons with energies of 2.56 eV by both valence electrons, and the previous electrodynamics binding energy ( $E_b=2.56 \text{ eV}$ ) is restored between the electrons of both atoms.

Thus during thermal destruction of the oxygen molecule the same amount of thermal energy is spent than that which is released during its further formation. No additional energy appears during thermal dissociation of oxygen molecule and at its further fusion.

If oxygen molecule is destroyed by a mechanical method, then it is necessary to spend 2.56 eV of mechanical energy for this purpose. Valence electrons of oxygen atoms are in a free state at lack of energy, which corresponds to such state, as there is no process of absorption of 2.56 eV of energy by each of them. The electrons cannot remain in such state; they should replenish immediately the energy, which they have failed to receive during a mechanical break of the bond between them. Where should they take it from? There is only one source: the environment, i.e. the physical vacuum filled with aether. They convert aether into energy of 2.56 eV immediately. The next stage is a connection of two oxygen atoms, whose valence electrons have replenished the reserves of their energy by means of aether. This process is accompanied by emission of the photons with energies of 2.56 eV by two electrons. Thus energy of absorbed aether is

converted into thermal energy of the photons. If we spend 2.56 eV of mechanical energy for destruction of oxygen molecule, we will get double quantity of energy ( $2.56 \times 2 = 5.13$ ) eV during further fusion of this molecule. Additional energy is equal to 2.56 eV.

Much experimental data show that in ventilation systems thermal energy of circulated air exceeds electric energy spent for a fan drive. Now we know that this energy is generated at mechanical destruction of covalent bonds in the molecules of gases, which the air consists of.

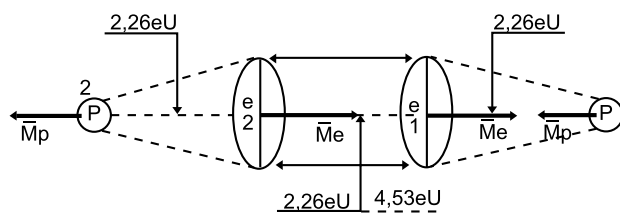
Using the above-mentioned method, let us analyse energetic of water molecule, which sometimes generates additional thermal energy. A water molecule consists of one oxygen atom and two hydrogen atoms. Binding energies  $E_b$  of the hydrogen atoms with its nucleus are given in Table 2 [1], [2], [3].

**Table 2**  
Spectrum of hydrogen atom

Values	n	2	3	4	5	6
$E_{ph} \text{ (exp.)}$	eV	10.20	12.09	12.75	13.05	13.22
$E_{ph} \text{ (theor.)}$	eV	10.198	12.087	12.748	13.054	13.220
$E_b \text{ (theor.)}$	eV	3.40	1.51	0.85	0.54	0.38

It is known that combination of hydrogen and oxygen is accompanied by an explosion, but its cause remains unknown. Let us try to find it.

Energy of fusion of hydrogen molecule is equal to 436 kJ/mole, or 4.53 eV per a molecule. As the molecule consists of two atoms, then the above-mentioned energy is distributed between them. Thus energy of one bond  $E_b$  between the hydrogen atoms is equal to 2.26 eV (Fig. 4). At mechanical destruction of this bond 2.26 eV is enough. At thermal destruction of this bond double quantity is required ( $2.26 \times 2 = 4.53$  eV) [1].

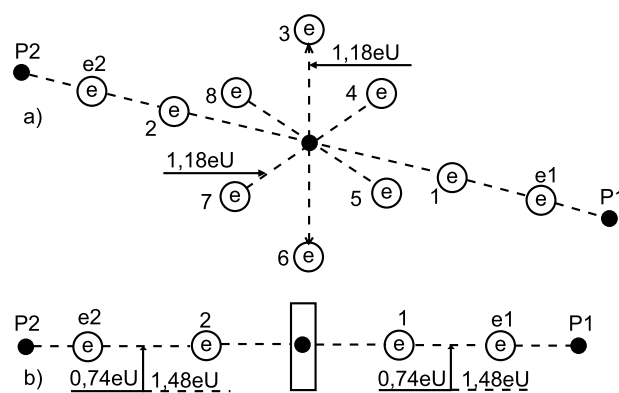


**Fig. 4**  
Hydrogen molecule

In order to form two water molecules, it is necessary to break two hydrogen molecules and one oxygen molecule into atoms. At mechanical destruction of covalent bonds

$2.26 \times 2 = 4.53$  eV is required to break two hydrogen molecules and 2.56 eV to break an oxygen molecule. Sum of these energies is equal to 7.13 eV. If the destruction processes of the above-mentioned molecules are carried out with a thermal method, then  $4.53 + 4.53 = 9.06$  eV is required for the destruction of two hydrogen molecules, and 5.13 eV is required for the destruction of one oxygen molecule. In total, it is equal to 14.19 eV. The difference between the energy spent for mechanical and thermal destruction of covalent bond of hydrogen and oxygen molecules is almost double.

It is known that during fusion of one mole of water 285.8 kJ or  $285.8 \times 1000 / 6.02 \times 10^{23} \times 1.6 \times 10^{-19} = 2.96$  eV per a molecule are released. As a water molecule consists of one oxygen atom and two hydrogen atoms,  $2.96 / 2 = 1.48$  eV falls per the bond (Fig. 5). Hence the electrons of hydrogen and oxygen atoms in water molecule are between the forth energy level and the fifth one at the usual temperature ( $1.48 / 2 = 0.74$  eV =  $E_b$ ), Table 1, 2 [1].



**Fig. 5**  
Diagram of water molecule:

1, 2, 3, 4, 5, 6, 7, 8 are the numbers of the electrons of oxygen atom;  $P_1, P_2$  are the nuclei of the hydrogen atoms (the protons);  $e_1$  and  $e_2$  are the numbers of the electrons of hydrogen atoms

Thus when two hydrogen molecules  $2H_2$  and one oxygen molecule  $O_2$  are destroyed by the thermal method, 14.19 eV are spent. As a result of fusion of two water molecules ( $2H_2O$ ),  $2.96 \times 2 = 5.98$  eV is released. There is some disbalance here since fusion process of water molecule is an exothermic one and 2.96 eV is released by one molecule. The given calculation shows that  $(14.19 - 5.98) / 2 = 4.10$  eV is absorbed during fusion of one water molecule. What is the cause of this contradiction?

The oxygen atom in the water molecule should reduce its volume when the transition from gaseous state into

liquid state takes place. It will happen when the ring electrons of oxygen atom descend on lower energy levels (nearer to the nucleus). They will emit the photons and their total energy will be equal to energy spent to destruction of two hydrogen molecules and one oxygen molecule, i.e. 14.19 eV. Since two water molecules have 12 ring electrons, each of them will emit  $14.19/12=1.18 \text{ eV}=E_b$  (Fig. 5). It is more than energy ( $E_b=0.74 \text{ eV}$ ) of binding of axis electron with the nucleus, and it shows that the ring electrons are situated nearer to the nucleus than the axis ones.

In this case quantity of energy produced due to fusion of two water molecules  $(14.19+5.98) \text{ eV}$  exceeds energy, which was spent for the destruction of two hydrogen molecules (9.06 eV) and one oxygen molecule (5.13 eV). Energy difference of 5.98 eV is divided between two water molecules. It means that  $5.98/2=2.99 \text{ eV}$  or 285.8 kJ/mole fall per a molecule. It corresponds to the existing experimental data completely [1].

The above-mentioned facts clarify a cause of the explosion, which takes place when hydrogen is combined with oxygen. Simultaneous transition of six ring electrons of each oxygen atom in the nascent water molecules to lower energy levels is accompanied by simultaneous emission of the photons, which generate explosion phenomenon.

Let us pay attention to the fact that two binding energies  $E_b$  between valence electrons e2 and 2 and between 1 and e1 are shown in Fig. 5, b. Energy of one electrodynamic bond is equal to  $E_b = 0.74 \text{ eV}$ . If this bond is destroyed by the thermal method,  $0.74 \times 2 = 1.48 \text{ eV}$  is required. This energy will be released during further fusion of the water molecule from hydrogen atom H and hydroxyl ion  $\text{OH}^-$ . In this case, no additional energy is generated.

Therefore the given bond is destroyed by the mechanical method spending 0.74 eV per a bond, each electron will have energy deficit equal to 0.74 eV after bond destruction. This energy will be immediately absorbed from the environment and will be emitted during the repeated fusion of the water molecule from the hydrogen atom H and the hydroxyl ion  $\text{OH}^-$ . At mechanical destruction of one bond of water molecule, the covalent chemical bond forms  $E_b = 0.74 \text{ eV}$  of additional thermal energy, which is registered in systems of water cavitation constantly (as we have already noted) [1], [2], [3].

It is known that water molecules combine and form clusters. If the bonds between the molecules in the clusters are covalent ones, mechanical destruction of these bonds should be accompanied by a release of additional thermal energy as well [1], [2], [3].

## Experimental Part

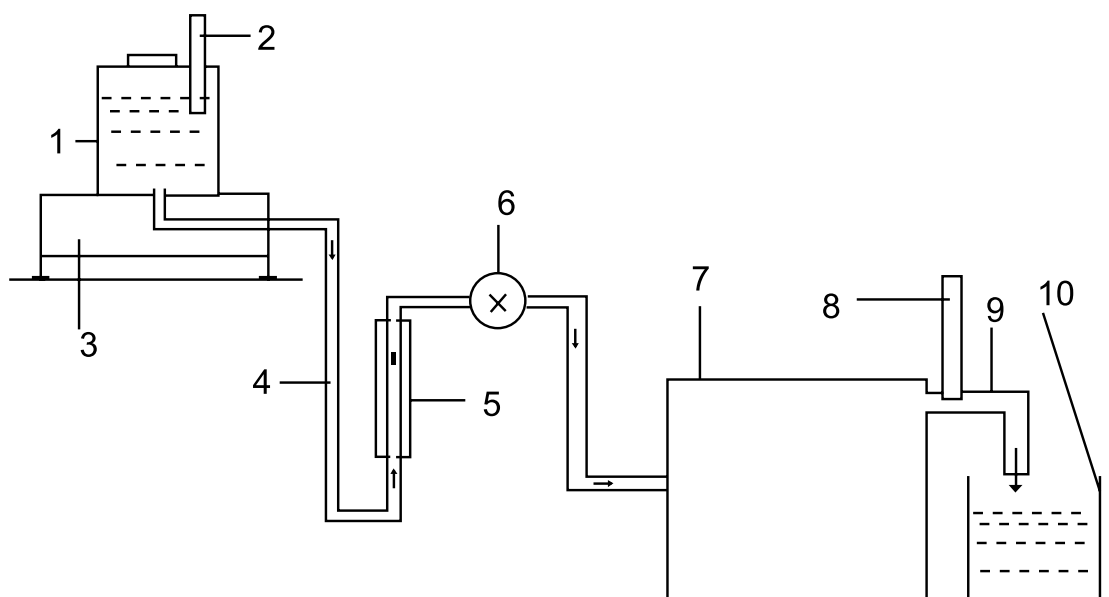


Fig. 6

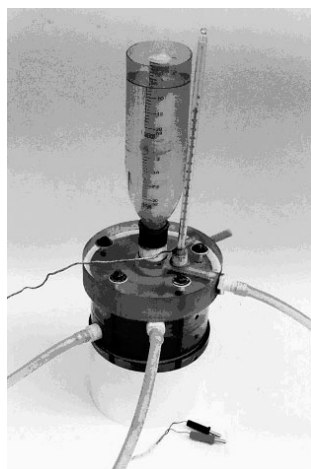
Diagram of the experimental device: 1 - reservoir for solution; 2 - thermometer; 3 - electronic scales; 4 - solution supply duct; 5 - rotameter; 6 - feed solution regulator; 7 - a special thin plasma reactor is in the process of patenting; 8 - thermometer; 9 - discharge of heated solution; 10 - inlet reservoir

Thus, chemical bonds between the atoms in the molecules and the molecules in the clusters can be destroyed mechanically, by electrodynamic and thermal influence. We have already shown that the mechanical way of destruction of such bonds requires half energy as compared with thermal energy. It appears from this that energy expenses for electrodynamic destruction of these bonds should be less than thermal expenses as well. Electrodynamic impact on the bond gives the opportunity to form the resonance modes where energy

expense for the destruction of these bonds is reduced to greater degree. In order to check this hypothesis a special experiment was carried out. It was connected with electrodynamic destruction of chemical bonds of water molecules with a changing frequency of impact. To test this hypothesis the check experiment was prepared and carried out by (besides the author of this article) A.I. Tlishev, G.P. Perekotiy, D.A. Bebko, D.V. Korneev. A diagram of the experimental device is given in Fig. 6. The results of this experiment are given in Table 3.

**Table 3**  
**Protocol of control test**

Indices	1	2	3	Mean
1 – mass of the solution, which has passed through the reactor m, kg.	2.112	2.153	2.118	2.128
2 – temperature of solution at the input of the reactor $t_1$ , degrees	24	24	24	24
3 – temperature of the solution at the output of the reactor $t_2$ , degrees	33.5	33.5	33.5	33.5
4 – differential temperature of the solution $\Delta t = t_2 - t_1$ , degrees	9.5	9.5	9.5	9.5
5 – durability of the experiment $\Delta \tau$ , s	300	300	300	300
6 – reading of voltmeter V, B	25.0	25.0	25.0	25.0
7 – reading of ammeter I, A	1.40	1.40	1.40	1.40
8 – electric power consumption according to indices of voltmeter and ammeters, $E_2 = I \times V \times \Delta \tau$ , kJ	10.50	10.50	10.50	10.50
9 – power spent for heating of the solution, $E_3 = 4.19 \times m \times \Delta t$ , kJ	84.10	85.70	84.31	84.70
<b>10 – reactor efficiency index according to the reading of voltmeter and ammeter <math>K = E_3 / E_2</math></b>	<b>8.00</b>	<b>8.16</b>	<b>8.03</b>	<b>8.06</b>



**Fig. 7**  
Photo of heat reactor

In the Russian market three firms (Yusmar, Termovikhr and Noteka) sell cavitation water heating equipment with energy efficiency index of 150%. Soon, an air heating devices with the same efficiency will be produced. The processes of mechanical destruction of covalent bonds of the air gas molecules, molecules and clusters of water and their further fusion serve as a source of additional energy generated by these devices [1], [2], [3].

## Conclusion

Analysis of energy balance of the molecules with covalent bonds shows the possibility of additional thermal energy formation during mechanical and electrodynamic destruction of these bonds.

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# The Fourth State Of Matter (Plasma Energy)

## Power Generation

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Under the proper configurations and in the correct pre glow discharge environment more electrons can be released than what is required to trigger the release. This release of energy attains a high frequency oscillation that is indicative of the metal or metals involved in its release.

The release of high frequency energy from metals and semi metals (semi conductors) through the mechanism in the pre-glow discharge leads to the generation of radiant energy. This correlation has been identified through my findings. The release of high frequency energy from the atoms of electrical conductors is credited to my identification of the mechanism in the pre-glow discharge, or fourth state of matter. This has lead to extremely efficient alternative energy circuits.

The pre-glow discharge condition occurs when a sufficient amount of charge difference is applied across the gap of two electrical conductors. It makes a hissing sound if the electrodes are surrounded by air. The electrical properties between this gap change: electrons become “stripped” from their respective atoms and are liberated. In this state, air is **ionized** and is transformed into a **plasma** and is no longer a gas. It is now in the fourth state of matter, the other three being solid, liquid, and vapor (gas). The fourth state of matter is a good conductor of electricity, its average resistance being much lower than that of the same substance in its gaseous state.

A good readily available spark gap combination is lead and iron. This combination generates plenty of radiant energy and causes noise to be heard on a radio in its vicinity. As a general rule, the better the thermoelectric difference between the dissimilar couple the more radiant energy that will be generated when it is exposed to a plasma field.

Early in the summer of 1981, the pre glow had first caught my attention. This is where I had observed it between two plastic insulated hook-up wires from radio shack. The plasma between the two wires was called into existence because of a high voltage power supply that I had obtained for my electrogravitic experiments. The two wires were twisted together and given a charge of around ninety kilovolts.

*The release of high frequency energy from the atoms of electrical conductors is credited to my identification of the mechanism in the pre-glow discharge, or fourth state of matter. This has lead to extremely efficient alternative energy circuits.*

It was not until 1989 when I observed a high frequency signal on my oscilloscope coming from the pre-glow discharge phenomenon.

These signals were coming from across the room and originated from a crude component that I had built. This crude component consisted of a guitar wire that was centered through a section of PVC tubing. Around this tube was wrapped a coil of insulated transformer wire. This was my first ion-valve. It was excited with the same power supply where I had observed the plasma effect several years previous.

I knew that my ion valve was generating high frequency oscillations using air ions but did not find any practical applications for it until six years later. It was in this year (1995) when I realized the importance of the ion valve and its associated high frequency ion field, known as radiant energy to Moray, it being the essential principle behind his energy receiver.

In one experimental set-up, it was confirmed that when a charged capacitor is discharged through a spark gap that the stored energy is transferred by way of high frequency electrical oscillations. It was found that these oscillations occur directly before the discharge of the capacitor, thus the term, pre-glow discharge. It was found that during the pre-glow discharge plateau, energy is transferred from a primary to a secondary electrical coil. Directly after pre-glow discharge, a surge of current is measured. At the point of current surge is where most



of the stored energy in the capacitor is released as wasted heat. It was apparent that by maintaining the pre-glow discharge plateau a very efficient mode of energy transfer and conversion can be obtained. Logically what is required is a control mechanism. This is where my ion valve finds its niche. Upon further investigation, it is found that it keeps pre-glow discharge oscillations at their plateau, and suppresses current surge in a spark gap. It is a self-regulating quenching device. When it is placed in series with an air-core transformer and arc gap, its plasma hisses smoothly, the arc in the spark gap is almost silent and is very small. Continuous oscillations can be seen on an oscilloscope. A light bulb connected to the secondary will glow brightly. This result is not possible without the ion valve included in the circuit. The ion valve has the added feature of preventing back electromotive force, generated from inductive loads, from being discharged back through the circuit. Without the ion valve, energy is normally lost when it is discharged and is transformed into heat. Using the ion valve therefore has the effect of conserving energy.

## Fundamental Radiant Energy Device

“Standard” scientific principles are not being violated. There is no fringe science involved with radiant energy power generation. This is a very old source of energy being extracted and harnessed in a unique way through my discoveries. What I have discovered is practically a limitless source of energy. Radiant energy has existed since the beginning of time. What I hold claim to is an improved method to generate and to convert radiant energy, kinetically active ions, cosmic energy, call it what you will, into useful electrical power. Think of the radiant energy power generator as a type of energy detonator that liberates great quantities of energy with only a small exciting spark. No laws of physics are being violated. No new laws are being implied. They are being expanded. The concept is not that much different from how a lighted matchstick is able to start a bonfire.

The power generated from my circuits comes from the transformation of matter into radiant electricity. It does not come from the splitting of atoms. To obtain high wattage from a spontaneously radioactive substance would require unsafe amounts of radioactive material.

Under the right conditions, ordinary matter can be made to generate intense surges of radiant energy that can be heard on a radio receiver as static noise. Build a device that can efficiently capture this energy and convert it into useful electrical currents and you will have yourself

a powerful source of electrical power. This device will be powered by artificially disintegrating matter as described by Gustave Le Bon in his book “The Evolution of Matter” and in his book “The Evolution of Forces”.

Energy and matter are two distinct entities of the same manifestation. Matter represents a stable condensed form of energy. Heat, light, electricity, etc., are uncondensed vibrations of matter oscillating at differing rates. “Cosmic Energy” is the term that Le Bon used to define matter and energy as being one and the same manifestation. He theorized that when stable matter is disintegrated it is transformed into energy that we recognize as heat, light, electricity, radioactivity, etc.

Semiconductors will generate intense surges of electron oscillations that become powerful sources of radiant energy. A simple **ion valve**, or call it what you will, can be used to generate and convert this form of radiant energy into useful electromagnetic oscillations. A tuned transformer can be used to directly convert these oscillations into a practical voltage and amperage. This unique valve is shown in Fig. 1. Before it can function it must be connected to a suitable voltage source. The circuit in Fig. 2 demonstrates the full working concept. Other embodiments are also possible. The proof of concept circuit reveals how radiant energy can be generated and converted into useful electrical currents. Many additional stages can be added for more power. Many other circuit and component configurations can also be used but the fundamental conversion principle remains the same. The circuit and components shown should give you a very clear idea of how the technology works. The actual mechanics and electronics of building and validating a radiant energy prototype are relatively simple. Contrary to what some people might think, dangerous levels of radioactivity are never used in my devices.

## Ion-valve Converter Technology Explained

The ion-valve converter (ion-valve) shown in Fig.1 has an axial negatively charged tungsten cathode wire that extends the length its cylinder and is capable of emitting secondary electrons. The anode cylinder is positively charged and is made from a semiconductive material that will readily capture electrons.

Within a few milliseconds the accumulated negative ions are attracted to the positively charged onrushing atomic ions. When the negative and positive charges collide they

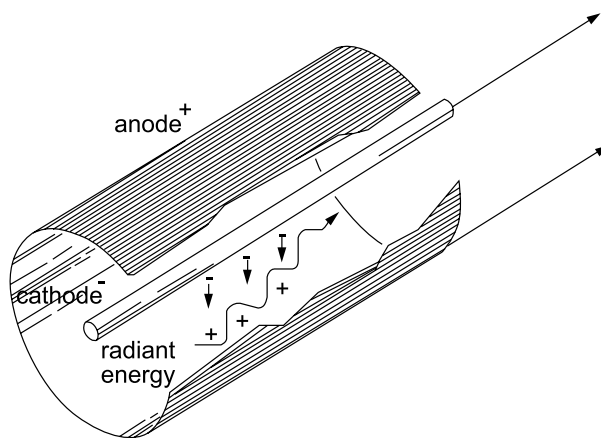
neutralize each other generating high frequency electrical oscillations.

There appears to be a common thread shared between several alternative energy devices. It is the pre-glow discharge. The report on the **Hans Coler** device released by the British Government indicates that there is excess energy released when electrical contacts are opened and closed. The **Lester Hendershot** device utilized a buzzer circuit that opened and closed its electrical contacts. In the **Alfred Hubbard** coil pre-glow discharge flowed through electrical contacts, a distributor cap and radium soaked spark plug. The **Joseph Newman** motor used a sparking commutator. **Thomas Moray** invented a glowing, cold cathode discharge tube that was the heart of his radiant energy device. **Hermann Plauson** was granted U.S. Patent No. 1,540,998 that used spark gaps to convert atmospheric energy. **Frank Wyatt Prentice** was granted Canadian Patent No. 253,765 that detailed his invention, which lighted 50 sixty-watt carbon lamps with an input of only 500 watts. His invention utilized a spark gap driven high frequency tuned resonant system. **Chancy Britten** used ion-valves constructed with a central wire that was surrounded by a coil of wire which is described in his US Patent No. 1,826,727. Britten's valve was said to have lit up his home in the 1930's according to a local newspaper article of that time period. **Alexander Chernetski** experimented with what appears to have been a type of ion-valve that was filled with hydrogen gas. It is said that he got up to five times more energy out of his device than what he put into it. **Edwin Gray** was granted U.S. Patent No. 3,890,548 for his efficient spark gap driven capacitive-discharge motor. He improved on this patent by replacing the spark gaps with a pre-glow discharge switching tube. His U.S. Patents No. 4,595,975 and No. 4,661,747 describes this tube in detail. Gray's patents claim to conserve battery power by sending unused energy back to the supply batteries. On close examination, we also find that his switching tube is actually a quenching device.

Radiant energy was generated during the pre-glow discharge cycle that also contributed to recharging the batteries. **Paulo N. Correa** and **Alexander N. Correa** obtained patents to a pulsed pre-glow discharge system that recovers energy and recharges a battery.

I have found that radiant energy is generated when a plasma field is in contact with the atoms of an electrical conductor. Most importantly, the quantity of radiant energy is greatly increased when the plasma field occurs between the inter-electrode couple of two differing electrical conductors. That, the wattage produced will depend largely on the type of electrode materials that

are used. I do not suspect that the above referenced inventors were aware of this amplifying mechanism.



**Fig. 1**

Ion Valve

In the embodiment in Fig. 1 the negative charge on the wire in the ion-valve negatively ionizes any gas that contacts it. These ions rush towards the positively charged cylinder. When a metal ion that carries an excess electron hits head-on with an elementary differing positively charged onrushing metal ion a violent union of the two metals occurs. This causes the newly formed bimetallic alloy to violently oscillate, break up (dissociate) and to liberate a burst of electrons. The “**sea electron model**” helps to explain this effect. According to the sea electron model metals are bonded to each other through electron sharing. The model suggests that metal atoms be bathed in a sea of valence electrons. If this model is taken one step further it can be seen that when metallic atoms are dissociated from each other excess electrons are released in the form of electrical oscillations of high frequency (radiant energy). This occurs because the electrons no longer take part in the inter-atomic binding force that existed before the dissociation took place. It becomes clear that the freed electrons will add amperage to the output circuit to which it is connected. Henceforth, the equation  $I \times E = P$  holds true in this system. Where, “I” represents the electrons (amperage), “E” electromotive force (ionic voltage), and “P” the power generated.

### **Obtaining Electrical Energy from the Transformation of Cosmic Energy**

Matter is cosmic energy in a condensed state according to Le Bon and Moray. What this means is that matter can be excited its plasma state and caused to rapidly disintegrate transforming itself into electricity.

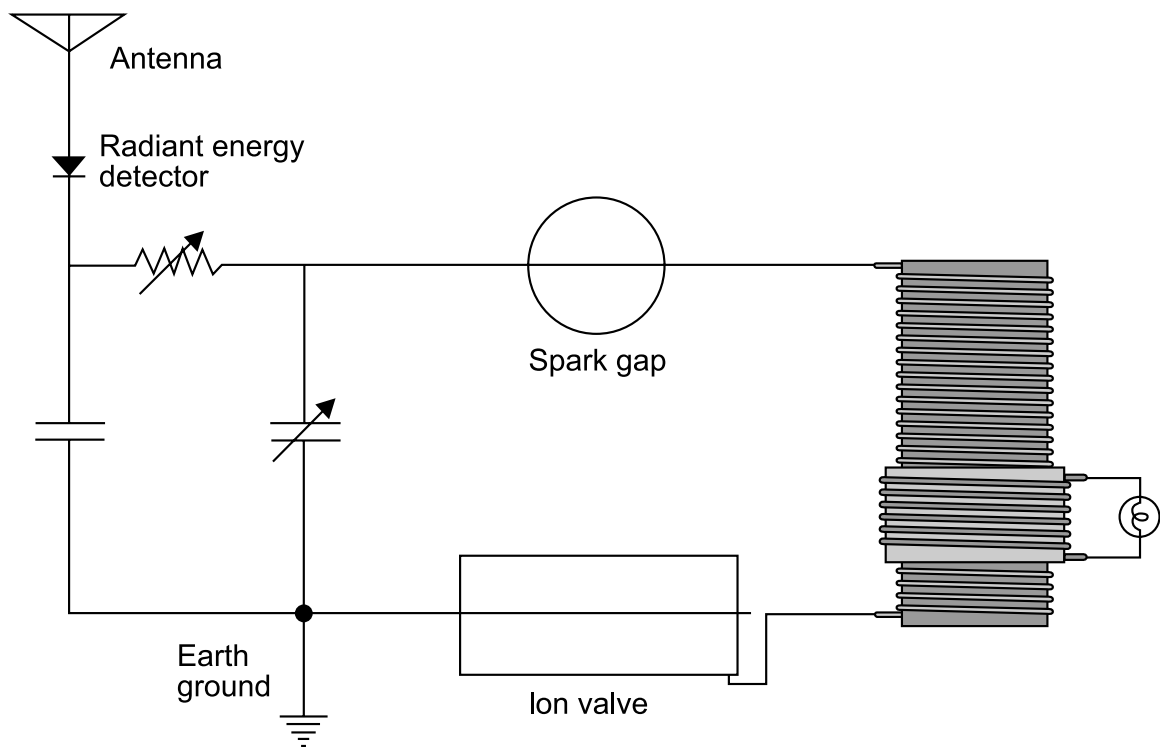


Fig. 2

#### Proof of Concept

The proof of concept shown will obtain energy from the dissociation of matter bringing the circuit to life. It does this by creating a plasma field between differing electrical conductors. Electrons are unleashed and feedback to the circuit where they are converted into useful power.

Plasma oscillating on the correct wavelength will act like a spark on a mass of explosive material but releasing electrical particles instead of heat. This is to say that the excited fourth state of matter (plasma) causes condensed energy (solid matter) to become uncondensed (radiant energy). The reaction will be far superior to the force that invoked it in the first place because the energy stored in matter is released. The energy that is condensed in the elements of matter is immense. The result is that an enormous amount of energy is released with only a slight loss of matter. Gustave Le Bon proved this when he demonstrated that the action of solar light and from electric arcs on bodies produced electric particles similar to those of uranium. He showed that it caused all bodies to disintegrate to different degrees.

*the excited fourth state of matter (plasma) causes condensed energy (solid matter) to become uncondensed (radiant energy). The reaction will be far superior to the force that invoked it in the first place because the energy stored in matter is released*

According to the law of conservation, when we give to a material body a determined quantity of energy, this energy might be transformed, but the body will never give back a quantity in excess of what it received. This principle is considered too self-evident to be disputed. It makes sense that matter can only give up energy that

is given to it and is unable to create excess energy. Without violating this law, matter can be excited into giving up its stored inter-atomic energy. Condensed matter can become uncondensed if its oscillations become

violent enough and henceforth transforming itself into radiant energy. No laws have been violated. They have been expanded. The first law of thermodynamics describes the principle of the conservation of energy. It states that "energy is not created or destroyed; it merely changes form". The fact is that the creation or destruction of energy is a result of matter being broken down or built up. They both go hand in hand.

Naturally occurring radioisotopes were created through the billions of years of **cosmic ray** bombardment of ordinary matter. Their matrixes became unbalanced. The

correct trigger will cause these isotopes to seek their original balanced state. Enormous amounts of electrical energy can be obtained from the transformation of stored cosmic energy. These isotopes contain a very old energy reserve that can be released in a unique way with my discoveries.

Have you ever wondered about spontaneous radioactive decay? Is it really a super charged state of matter? If an atom can become ionized by either gaining or by losing electrons then why can there not be a nuclear ionization too? I hypothesize that atoms do become ionized on the nuclear level by gaining or losing neutrons. This may appear incidental but could be at the very heart of an ultra-chemistry. It is highly probable that this hypothesized phenomenon is behind natural spontaneous radioactive decay and explains many unanswered questions about nuclear science.

## **Liberated Energy**

With a slight excitement from a pre-glow discharge in a spark gap, or even with no excitement at all, as we observe in spontaneously disintegrating radioactive bodies, such as U235, we can obtain large quantities of energy. Clearly, we did not create this liberated energy, since it already exists in matter, but we release it under the right conditions. This is being done without violating the law of energy conservation. The idea that matter could be transformed into energy was absurd before the acknowledgement of nuclear transformations.

A Nu Science is on the horizon. It involves the means of transforming matter into energy without splitting atoms. This science recognizes several isotopes of matter that spontaneously liberate energy as observed in naturally occurring radioisotopes. My research indicates that it is also possible to artificially speed up the natural decay process of condensed energy (matter) using a minute plasma field, as from a pre-glow discharge, etc... With a very small quantity of energy, we will be able to produce a very large quantity of energy without splitting the atoms.

## **Capture Capacitor**

Nature offers us cosmic energy that manifests itself in many different forms. Electricity is only one of its manifestations. From this knowledge, we can obtain electrical power with no moving parts. The natural world contains many storehouses of this cosmic energy. Energy is all around us just waiting to be transformed.

The capture capacitor is one such example. It is called a capture capacitor because it captures and transforms electrical charge into electrical current. It does this with the aid of naturally occurring radioactive matter (N.O.R.M.). Put a pair of dissimilar metal electrodes together with a porous ceramic dielectric material sandwiched between them, along with a weak electrolyte and you have built a capture capacitor. In a low power capture component there exists a minute impurity of N.O.R.M. It is always present in clays and is usually present in ceramic materials.

If you want a capture capacitor to generate more power all you have to do is to add additional amounts of radioactive material to the dielectric. Lead-210 is the optimum choice because it has a half-life of around 22.3 years and is a pure beta (electron) emitter. Its half-life is almost twice as long as tritium. This means that it is feasible to build a component that will put out power for several years with little maintenance. Lead-210 is a decay product of radon gas. The parent source of radon is uranium. Therefore, uranium ore can be powdered and mixed into the ceramic material.

The atomic ions emitted from naturally occurring or artificially induced radioactive transformations can be directly converted to electrical power. The circuit shown can be used to convert radiant energy into useful electrical currents. Additional stages can be added for more power. The circuit shown gives a general idea of how such an energy conversion device functions. By no means is this technology limited to this one circuit, configuration, or source of radiant energy.

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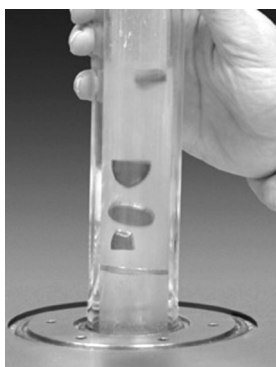
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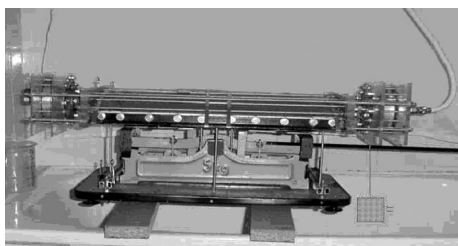


◆ A new type of high field superconducting magnet from Oxford Instruments has enabled physicists at the University of Nottingham to balance the force of gravity and levitate heavy and dense materials such as lead, gold and diamonds. The patented Minimum Condensed Volume™ (MCV™) Cryofree™ superconducting magnet, developed and manufactured by Oxford Instruments in collaboration with the University of Nottingham, is the first of its kind in the world. Unlike conventional superconducting magnets, the MCV magnet never needs to be refilled with liquid helium and yet can generate a field over 300,000 times stronger than the Earth's magnetic field. MCV has a very small footprint and, operating at 4.2 K with a room temperature bore, can generate highly stable magnetic fields up to 16 Tesla.



<http://www.oxford-instruments.co.uk>

◆ Polish inventor Zygmunt Orłowski called attention of the scientific society to his perpetual motion machine **METOOZ**, which according to the author after further improvement will be able to extract energy from the earth's gravitation.



[http://www.nets.pl/~metoozor/perpetual\\_motion\\_machine.htm](http://www.nets.pl/~metoozor/perpetual_motion_machine.htm)

◆ It is necessary to change behavior of people in order to decrease environmental damage. This was the message of **"Green Week 2003"** which took place since June 2 through June 5 in Brussels.

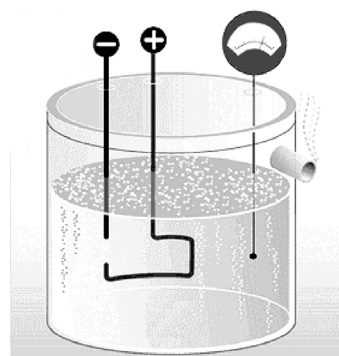
The conference's key issues were three aspects of United Europe environmental policy: sustainable production and consumption, renewable energy and water supply.

Green Week is the first environmental forum of such a scale. Three thousand participants from all over the world represented

governments and funds, industry and mass media. The exhibition organized in the framework of Green Week included 62 displays from 14 European countries and were dedicated to the newest environmental technologies and projects. During the Green Week 26 conferences and seminars took place, as well as a great number of press conferences and actions for young people.

◆ **British researchers** (Gardner Watts company) **believe that they have made a groundbreaking scientific discovery after apparently managing to "create" energy from hydrogen atoms.**

The device represents "thermal energy cell" which appears to produce hundreds of times more energy than that put into it. If the findings are correct and can be reproduced on a commercial scale, the thermal energy cell could become a feature of every home, heating water for a fraction of the cost and cutting fuel bills by at least 90 per cent.



<http://www.telegraph.co.uk>

### ◆ Gravity Conversion Rotary Device

The below figure is from  
[http://www.theverylastpageoftheinternet.com/newclaims/GravityMotor/gravity\\_motor.htm](http://www.theverylastpageoftheinternet.com/newclaims/GravityMotor/gravity_motor.htm)



***Does it really work?***

# THE MARCUS DEVICE CONTROVERSY

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<http://www.americanantigravity.com/marcus.html>

*Editorial: This overview is devoted to the fantastical device created by inventor Marcus Hollingshead that encountered more than its share of publicity and controversy between November 2002 and March 2003. You can participate in discussion on [aggroup@yabooingroups.com](mailto:aggroup@yabooingroups.com).*

The problem with Marcus has been that he was pressured by too many people to produce too fast results. I started talking to him in November, and he is always sounded like an honest, rational man with a good heart. The problem is that once people started to hear his private claims that he could lift something like 2 tons of weight, things kind of went south.

While people in general have been very well-meaning, they are desperate to solve many of our current energy-problems, and when Marcus appeared with a potential solution it got out of control. Pretty soon film crews were showing up at his house unannounced, and he was getting unwanted phone calls from people who had looked up his number online.

In my opinion, it is really a problem of a “social dynamic” at work here – too many people, with too much access, all at once. This also correlates to the type of person that different people are. For instance, I am a very open person, and I really do not value my privacy a heck of a lot — therefore, when TV crews drop by with 5 minutes notice (and they have), I tend to just let them in for a demo. However, Marcus, who is much more of a private person, seems to have become a bit overwhelmed at this proposition.

Also, keep in mind that I had initiated working with the media because I felt that it was time for the excellent work in the Lifters groups to see the light of day. There was some debate about this, but the Lifters group as a whole has greatly benefited from being about to tell people about this new technology.

Marcus had not actually “gone public” about his work. He had leaked information about his research to a few people, and from there it was leaked to several others, who in turn told their friends about it. Unlike the Lifter technology, which has hundreds of people that can talk

about how it works and where it came from, Marcus technology was represented solely by himself. That means that everything surrounding his device came back ultimately to him alone. Without any real group ownership of the expertise behind the device

As I said before, Marcus was new to the publicity, and did not have time to prepare the resources that the rest of us have had to answer questions, provide demo materials, etc. Naudin and Saviour have a masterful manner with regard to teaching people about Lifter technology, but they have had years to prepare this information and perfect a method of presenting it to people.

Most of us in the AG groups tend to proselytize for the technologies that we believe in. I know that I do, and if you haunt the newsgroups much you will notice that everybody there believes in something and can go on for months non-stop telling the world about it (again, I do this). Marcus, however, does not really have this personality — he is more of a “take it or leave it” type of person.

For me, this was another indicator that he was the “real deal”. You have to understand that I have never seen working prototype pictures of the Marcus device, and all that I had to go on was the feeling that I got from interacting with him on the phone and online. The fact that he did not try to “sell me” on the idea was a big plus. He told me about the device, and his story was always consistent. The other people that he talked to also had a consistent story – I have not talked to anybody and heard a different version than I heard from Marcus himself. That is a big plus from the credibility perspective.

Marcus initial goal (from when I started talking to him in November) was to gradually ease into working with



the public to tell them about the technologies he was working on. Unfortunately, I probably aggravated the issue a great deal, because his early descriptions of the technology might have gone unnoticed if it had not been for some of the things he had mentioned about his research.

When I read Marcus' firsts posts on the device, my very first thought about his claims was that they were bogus. Judging from the reaction of the Antigravity newsgroup, I gathered that a few other people also had the same initial reaction. The reason might be a little selfish – after you hear claims but do not see results for a long enough period of time, you tend to protect yourself emotionally by becoming skeptical to the idea that somebody can be lifting hundreds of pounds of weight using a completely new and revolutionary technology.

Nonetheless, something that Marcus had said resonated with me. I remember that he was talking about his results being based on a study of the Earth's fields, which is something that I had read about myself during the college years. Telsa had done a lot of work involving the Earth's electrical and magnetic-fields, and I had always felt that this research might come in handy later as a potential basis for Antigravity research. However, I did not have any specific ideas, and began asking Marcus questions offline to find out more about his research.

In reality, I am nobody special, so I think that perhaps this would have happened in any event no matter what my reaction would have been. Certainly I am not the only person that took an early interest in his work, and from what I learned later he had already been a little bit too honest in the BBC online newsgroup before he ever became involved with the Antigravity newsgroups.

From January to mid-February Marcus became like somewhat of an addiction in the newsgroups. This was a strange phenomenon to watch, but if he did not answer questions in the newsgroups for even a day people started asking whether he had been kidnapped or the government had assassinated him.

You have to understand that most inventors tend to segregate their time into "public" and "private". I do, Naudin does, and everybody does this. When you talk to the public about what you have built, you really get into it — but when you are actually working on it, you tend to hole up in the garage and put the entire world on "ignore" until you have finished with whatever it is that you are doing.

Marcus really started to get publicity in late November 2002, and it built up over a few week period of time. By mid-December, he had a healthy following in the Antigravity newsgroup and people in the 5 or 10 other AG newsgroups were developing more than just a passing interest. Great stuff for Marcus – he had thought that he was the only person doing this research, and it turned out that lots of people shared this common interest with him. We had lots of really valuable and productive exchanges.

Marcus bided his time working on the projects – he had initially stated that he could lift around 200 pounds of weight with his November version (prototype #161, if I remember correctly). He did not have a digital camera, and he did not want to publish photos until he had a better prototype anyways. That was OK with me – I am used to work with a variety of inventors and came to realize a long time ago that everybody has their own style. I was content to wait until Marcus had additional data, and the only thing that I insisted upon was that sooner or later he ante-up and provide some photographic evidence.

Despite lacking photos or video evidence, Marcus did have documentation. In fact, he wrote more documentation about his device than I had ever hoped to receive. He cranked out about the equivalent of 30-pages of "real" documentation in a very detailed form within 1-month, and had the email equivalent of many more pages in postings about how the device worked online. Marcus had already been publishing details online for about 2.5 months.

Despite the incredible amount of published data that Marcus was able to complete, in some ways it made things worse for him than not having anything at all. The reason was the nature of his research. My work, currently focused on Lifters, was in a technology that is easy to explain – the device is built like this, it works like that, and it can be described in a manner similar to some other thing ....basic, easy to explain, and easy to compare.

After all, Lifters have been accused by science of being ion-wind devices. If nothing else, rebutting this claim gives us someplace to start – something to compare against to provide people with an idea about how the device works. Additionally, we had tons of video and photographic evidence to back up our claims. In Marcus case, the documentation that he provided made things worse because his technology is so utterly different. It is not ion-wind, nor the Biefeld-Brown effect, nor

apparently the Searle effect. In fact, the more than you tried to pin down exactly what it was, the harder it became to describe it.

Also, its not like he could simply fall back onto describing the construction of the device – **reason being that it contained a series of interrelated coils with a unique configuration that were intrinsically tied to the operation of the device.** Every time he wrote a detailed summary of the construction of the device, we had come away with more questions than we had started out with. After a time I gave up trying to understand how it was constructed, because I only had bits and pieces.

Marcus was using an arrangement of 6-coils, and what are described as “bifilar windings”. Essentially, this means that you wind two wires together around a coil and then tie one of the ends to another, making the two wires essentially one long wire wound “against itself” down the length of the armature its on. There are 6 of these armatures on the device, mounted around a central RP (or reference point).

Marcus created all of the terminology for these parts – this lends additional credibility to the idea that he had had 7 years of experience with it. These are ideas that you just do not “make up” for publicity. For instance, the bifilar windings on the armature-coils are self-cancelling fields, and even a basic-electronics education will tell you that. However, the interesting thing is that once you really start to get into the advanced “post-scientific” research on magnetic fields you start to see self-cancelling magnetic coils all over the place. The reason is apparently that while the “B-field” (*Editor: i.e. magnetic field*) of the coils cancels, the “A-field” (*Editor: i.e. vector potential*) that Tom Bearden keeps talking about does not, which means that you can isolate the really interesting effects from the coil without having to deal with the high field-intensity effects from normal electromagnetism.

Marcus had described these six armatures as being activated in a series, or order, to obtain results. Each of the coils was spun by an electric motor mounted on the armature, and when the coil was spun up to a certain speed and “stubs” mounted a periodic intervals on the side of the armature were fired in sequence the antigravity effect was created.

Marcus Antigravity effect was a directional force that was applied in a unique manner depending on which

coils were activated. This means that by activating (for instance) coils 1 and 3, he could create an antigravity effect and move the device left – or something to that effect. Turning on and off each set of coils gave him movement on one axis of thrust, which corresponded to X, Y, or Z in a standard 3-D geometric graph. Since you can move in either direction down any given axis of thrust, this means that you have 6 axis of movement height (up and down), width (left or right), and depth (forward or backward). His device provided movement on any axis by either one coil or an arrangement of coils.

For a while Marcus did not want to talk about side effects, but I pressured him into it. The reason was that I have seen side-effects that were pretty darned strange in a number of different experiments, and I was willing to bet that if I pressured him a bit he would talk about what he had seen but did not want to reveal (for fear that people would not take him seriously). It turns out that I was right....

Marcus had talked about the RP, or “Reference Point” upon several occasions. This is a multi-layered device that acts somewhat like a capacitive element. It sits in the direct center of the Marcus device, and it is the reference-point for the entire device. The RP is manufactured from cast-iron, and Marcus says that he has a local company build them for a few bucks each by pouring iron into a mold based on one of his designs.

You can active the RP at the same time that you activate the coils. You have coils rotating around the RP, with “stubs” on the coils firing periodically at points corresponding to spots on the surface of the RP. Meanwhile, you also have an electrical charge on the RP itself, which means that there are a lot of elements interacting at once to create a very complex dynamic.

One of the interesting side effects was a darkening and “blurring” effect of the RP, as if light was being reflected off it. Another was a Star-Trek like “force shield” around the RP. These only occurred when all of the coils were activated at once. Also note that since the coils are opposing in nature (one for each direction on each axis), that when you are creating the force field effect the device cannot be levitating. However, the device is operational, and you have a force-field that you can apparently bounce a heavy hammer off without being able to penetrate it (Marcus description).

Another interesting note is that the force-field effect can be modified to create a vacuum. I am not sure how

Marcus noticed this, but he had said that it appeared to create a vacuum inside of the field's boundaries during operation. Interestingly, it also ran very cold – apparently down to a hundred degrees below zero, but only within the localized boundaries of the field.

I am not a professional physicist, but this is something that has been reported with the Searl effect and several other experiments, and the reason that I believe it occurs is because you are taking the kinetic energy of the device as well as some of the kinetic energy of its molecules (i.e.: heat energy), and injecting it into another dimension. After all, anytime we directly modify a gravitational field we are creating a dimensional effect, but in normal life we do not notice it because the boundaries between gravitational fields are very gradual.

Well, in the Marcus device the boundary between gravitational fields is not a several thousand mile-long gradient like the Earth's field is – instead of you have a gradient perhaps 10-times more intense focused within a 3 to 4 inch area. That means that you are creating essentially a rift in time and space (self-healing) that is kept open by the energy that you are pumping into the device.

To the best of my knowledge, this is the most accurate description that I have seen yet for why his device does this. Marcus himself could not explain why these effects occurred, and to be honest I scared him more than a little when I told him my theory.

In the hypothesis that I just put forth on the origin and functionality of the Marcus device effect, the interesting this is that there really is not a direct correlation between input energy and the effect itself. That is because you are not using the input energy to actually cause an effect – you are essentially using the input energy to translate the device into another dimension (although it is still partially within ours).

Einstein called these “frames of reference”. The idea is that the energy input is used only in putting the device into another frame of reference, but that any interaction between us and our “normal” frame would have to be modified for any interactions with the “modified” frame.

Again, this takes place in normal physics – but usually it involves motion, and normally it takes place over a vastly

larger gradient of time/space/whatever. The difference between two frames is the difference between two locomotives moving at different speeds – the energy input goes into accelerating each locomotive up to that speed, but the actual work is performed if those two trains interact is solely a product of the frame of inertial reference (mass & velocity = energy).

Another excellent example is a helium-balloon. You put the energy into condensing the helium and pumping it into the balloon, but it is not the helium that creates lift – it is the surrounding atmosphere. In a very real sense a helium balloon gets its energy from the surrounding environment. The energy that you put into “maintaining flight” in a helium balloon is only the strain on the fabric used in holding the helium into the confines of the bag

that encloses it. With the Marcus device, I would bet money that it is not the input energy creating these effects – it is instead the difference in frames of

dimensional/inertial reference between “our” environment and the “device's” environment, whatever that difference may be.

You see, even though this sounds like a load of BS, magnetism is not real. This is not an idea that I am making up – in fact, it is an entire chapter in the physics 101 textbook kicking around downstairs in my house. Take two magnetic fields, and project them in the same direction at the same speed. Field A can not interact with Field B, because neither of the fields really exists – they are merely ripples on a pond, and that pond is the background of the time-space continuum. People that believe in relativistic gravitational effects take for granted that things like this happen – after all, gravity is not a force per se in relativity – only a modification of the dimensions of time-space. Well, most people do not realize that Einstein based his theory of gravitational force on his study of magnetism. Magnetism is the same thing – it is a modification of the fabric of time-space.

Take two magnetic fields that did not interact from a moment ago, and now change the direction that one of them is traveling in. Suddenly, the two fields that could not even see each other a moment ago now create an incredible “torque” – this is the same thing that we see in bar-magnets and electric motors. This is the “torsion field” research.

*the energy input is used only in putting the device into another frame of reference, but that any interaction between us and our “normal” frame would have to be modified for any interactions with the “modified” frame.*

Bar magnets are different than pure fields because they are composed of the discrete fields of thousands of tiny magnetic “domains”. That is why the fields from bar-magnets are never “invisible” to each other – it is because that the fields in bar magnets are too jumbled to ever really “line up” to the point of being invisible. Pure fields can do this, however, reinforcing the supremacy of Einstein’s relativistic effects with relation to electromagnetism.

Anyhow, that is about it for now – I will try to come up with a more detailed picture for you on this if you like, but I expect that you will probably have more questions about Marcus theory and device in near future. It is a very complex idea underlying his research, but the basis of it is the idea of “rotating magnetic fields”.

If you want to do additional research on your own into related fields of study, I would definitely look up “relativity and magnetism” – it provides an excellent example of how to visualize relativity theory in the study of magnetic field interactions. This is something that electronics engineers are not taught, which is why you have never heard of this in an engineering sense before. However, in physics is a well-known concept, although most physicists prefer to work with quantum mechanics rather than relativity these days.

In terms of rotating magnetic fields, you can look up “torsion fields” – again, the Russians have the best understanding of advanced torsion field physics, although their best material probably has not been translated yet. Additionally, rotating magnetic fields are the basis for the Searle Effect and the Hamel device.

Marcus was intrigued by Searle’s claims, because they appear to have matched many of his own results. Interestingly, Marcus had developed his work within an “intellectual vacuum” and had never heard of Searle before I told him about the similarities. Nevertheless, force-fields, ice-cold operating temperatures, and antigravity seem to be a pervasive similarity between all manners of experiments that have been reported using rotating magnetic fields. I had assumed that Searle’s claims were bunk, but after hearing about similar effects from Marcus research it led to reconsider some of the criticism surrounding Searle lately.

One a final note – one group that may lend additional credibility to this research is Godin and Roshchin in Russia. They obviously benefit from the years of knowledge that the Russians accrued in magnetic field

systems theory, and they attempted a replication of the Searle effect device some years back (and claimed to get some results). I hear that they have been working on a revised version of their experimental setup recently and hope to have even better results in the very near future.

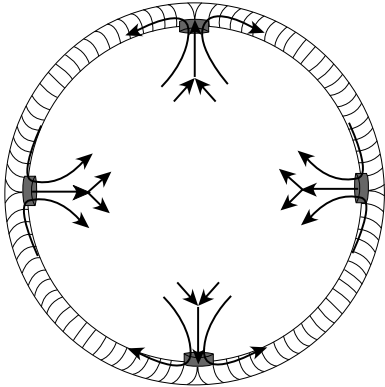


Fig. 1

Magnetic flow for a bifilar-wound toroid that is split at four points on the toroid. This configuration occurs when the coils in the nubs are charged to match the charge on the toroidal coil. The configuration is a quadra pole with a minimum magnetic field at the center



Fig. 2

Marcus recommends the Kikusui 6000L and 18000L multipurpose AC power-supplies

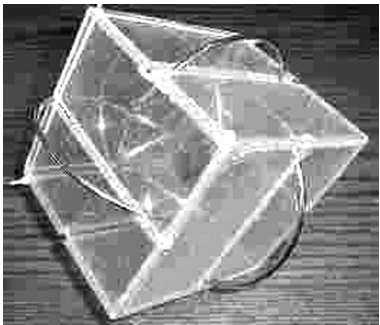


Fig.3

A scale-model mockup of the ring-arrangement within the Marcus device, showing the interlinking coils

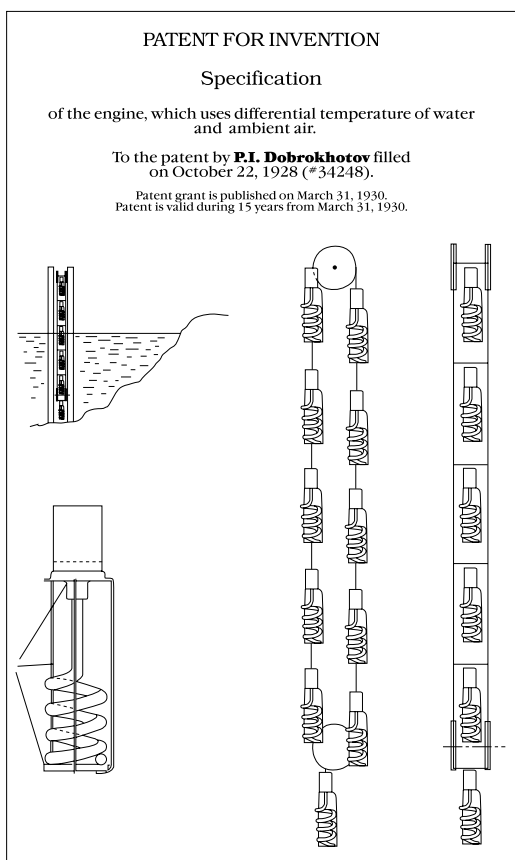


# History pages

## Systems of conversion of thermal energy to mechanical one

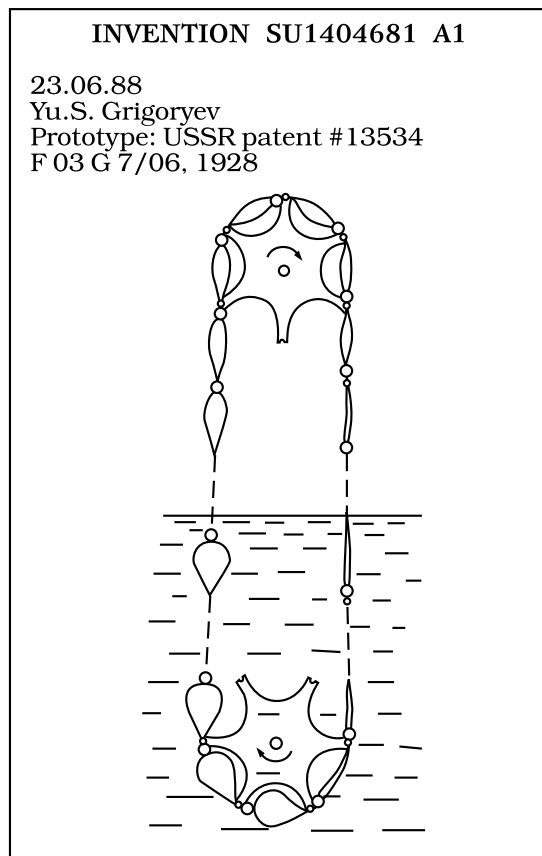
Review prepared by correspondent Alla Pashova, **Russia**

*There is a wide class of closed-cycle heat engines using differential temperature of water and ambient air. This kind of systems enables thermal energy to be directly converted to mechanical one so as to perform a useful work. We publish patent specifications of two analogous devices of this kind.*



In 1928 **P.I. Dobrokhoto** proposed a design of such an engine. It represents an endless chain thrown over a pair of blocks and partly immersed into water. The chain consists of coiled pipes filled with a volatile liquid (such as sulfurous anhydride or ammonia). One end of each coil is fastened to a frame, while another end is fastened to a cylinder piston mounted on the same frame. When overwater elements are heated by means of ambient air, the liquid inside the coil evaporate. Vapor put pressure upon the pistons which being in motion compress air in the cylinder, and thereby reduce volume of each element. When submerging, the element gradually cools down, thereupon causing a decrease in pressure of vapor of the liquid, which is enclosed within coils. The pistons move in backward direction, and the volume of air available inside the cylinder increases. Increase of volume results in increase of water buoyancy force that sets the device in motion.

In 1980, **Y.S. Grigoriev** developed his forerunner's idea by improving the system described above. The inventor aspired to enhance the effectiveness of this method of conversion of heat energy to mechanical one. He suggested fixing the volume of chambers filled with a heat-sensitive actuating medium at its minimal magnitude before immersing of those chambers into warm water. In water the actuating medium heats and partially evaporates. At a maximum depth of submersion, the chambers are released from fixation to be expanded during emersion. Thus one may avoid expansion of the chambers during their submersion. Furthermore, there is a possibility to activate the device and get the useful work without preliminary spinup from an external drive.





## Iliya R. Prigozhin (25 January, 1917 – 28 May, 2003)

Iliya R. Prigozhin, aged 86, Nobel Prize Winner, Belgian scientist of the Russian origin, died on 28 May in Brussels. Prigozhin made a number of prominent discoveries in the field of thermodynamics and statistical mechanics of nonequilibrium processes. In particular, he developed a concept of irreversibility as applied to thermodynamics. Prigozhin was studying time as a physical phenomenon. In 1977, he was awarded the Nobel Prize for chemistry “for works on thermodynamics of nonequilibrium processes”.

The scientist formulated one of the major theorems of the theory of nonequilibrium processes. This theory was later named after him. According to Prigozhin's theorem, stationary state of the system corresponds to minimal entropy generation. The outstanding physicist was also an initiator of applying methods of theory of nonequilibrium processes in biology.

Thermodynamics principles were enunciated in the middle of the XIX century after the invention of a steam-engine, when interaction of heat, electrical, and mechanical work aroused a higher interest. In accordance with the first law of thermodynamics representing an energy conservation principle, energy neither disappears nor appears in any closed system, but transforms from one form to another.

The Prigozhin's theorem sounds as follows: stationary state of the system (under conditions impeding attainment of equilibrium state) corresponds to the minimal generation of entropies. If there are no such impediments, then production of entropy reaches its bare minimum, i.e. zero. The theorem was proved by Prigozhin in 1947.

In thermodynamics the nonequilibrium specifically open systems were of most interest for Prigozhin. In such systems either or both (matter and energy) interchange in reactions with an environment. At that, quantity of matter and/or energy increases or decreases in the course of time.

It is obvious that human society as well as the biological environment is an example of dissipative and nondissipative structures. In the 60s and 70s, Prigozhin developed his theory of dissipative structures and described the formation and development of embryos. Critical points of bifurcation in his mathematical model are correlated with a point, where a biological system becomes consecutive and stabilized.

*For his scientific career time, the physicist was awarded over 40 scientific rewards and admitted as an honorary member into national academies of many countries all over the world.*

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The 11<sup>th</sup> Russian Conference on Cold Nuclear Transmutation of Chemical Elements and Ball-Lightning (RCCNT&BL-11) is to be held during September 28- October 5, 2003. The place of the Conference is in Dagomys near the city of Sochi.

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## Letters from our readers

Thank you for publication of my article. Your magazine becomes more and more popular.

My special thanks to Editor-in-Chief Alexander V. Frolov. Whatever they say or write in the press, he has done a great work and it is not only my own opinion. He has managed to do that everybody had been waiting for a long time. My colleagues (not only from Rostov-on-Don State University but also from other Rostov Institutes of higher education) ask me personally send the best regards to the editorial staff of your magazine.

**Sergey A. Gerasimov**

---

### Free energy?

The scientific community says that it cannot exist. Where did we hear that before? Academician Valery Sobolev from the Academy of Sciences, the head of the research group working on the experiment says: "This is not some new physics, but just experiments that have been performed very seriously. Make surge of electrons from the environment, remove them, deplete the fused electrolyte with basic typical metals; what you derive from it is what cannot be produced by chemical methods. This is a new state of substance." As the researchers say, first they discovered a particular electrochemical process where high-temperature materials in a new state are the product. This in its turn allowed to discover a new state of substance, new class of materials, a new source of energy, a new method of cold plasma generation, a new superconductor. See whole article at: [http://english.pravda.ru/science/19/94/379/9675\\_energy.html](http://english.pravda.ru/science/19/94/379/9675_energy.html)

**Josef Hasslberger**

Personal home page on physics, energy technology, social and economic issues: <http://www.hasslberger.com>

# New Energy Technologies

Published by Faraday Laboratories Ltd.

Issue #3 (6) 2002

Research on advanced propulsion systems and new energy sources

## *Time Control experiments*



### **Also in this issue:**

- \* *New experiments: magnet monopole beam cures cancer*
- \* *Electrogravity experiments*
- \* *High efficiency ceramic heater*
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# Editorial



*Dr. Chernobrov and NET editor Olga Leontyeva.*

*The head of the Moscow research group "Kosmopoisk" Dr. Vadim A. Chernobrov (our readers certainly remember his articles on experiments with time) has recently visited the editorial office of New Energy Technologies in Saint-Petersburg, Russia. His visit was caused by discussion on the Time Machine project (investigation of active properties of time), started under agreement with Faraday Labs Ltd. Our magazine will inform readers on the topic in later issues.*

## NEW ENERGY TECHNOLOGIES New Book

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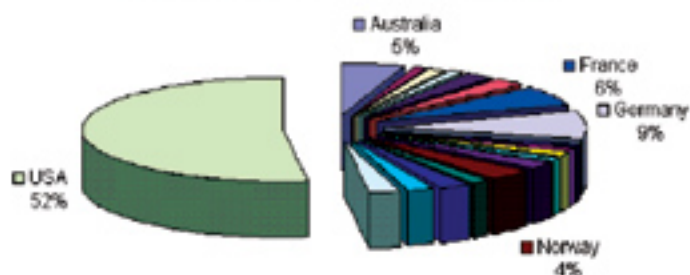
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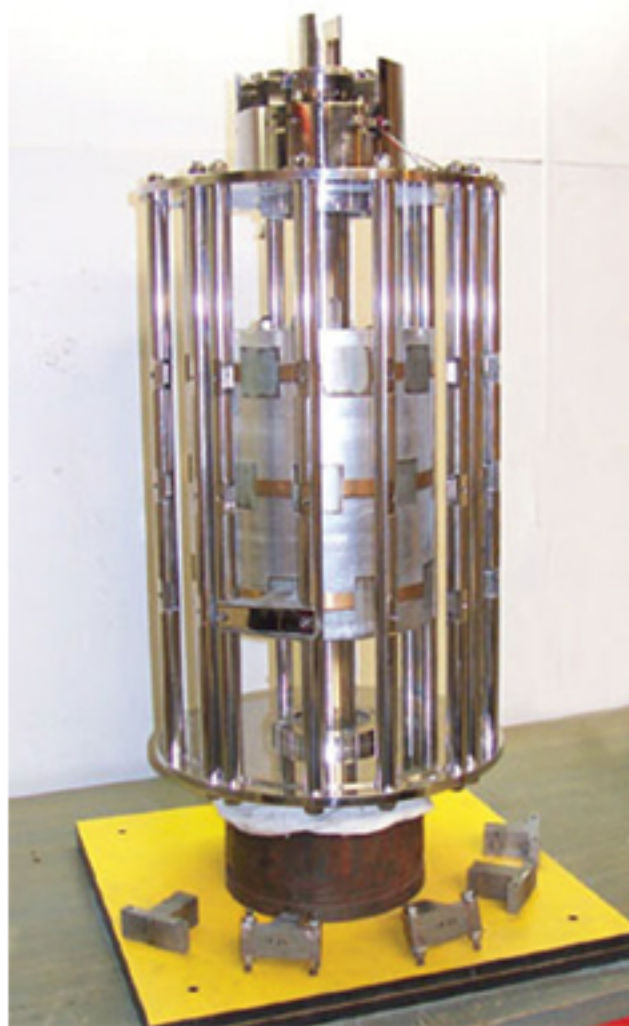
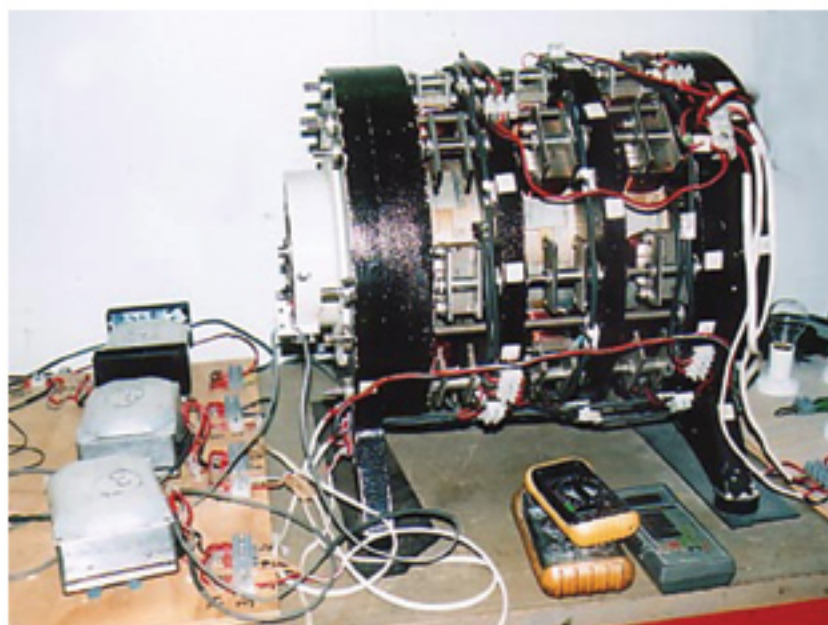
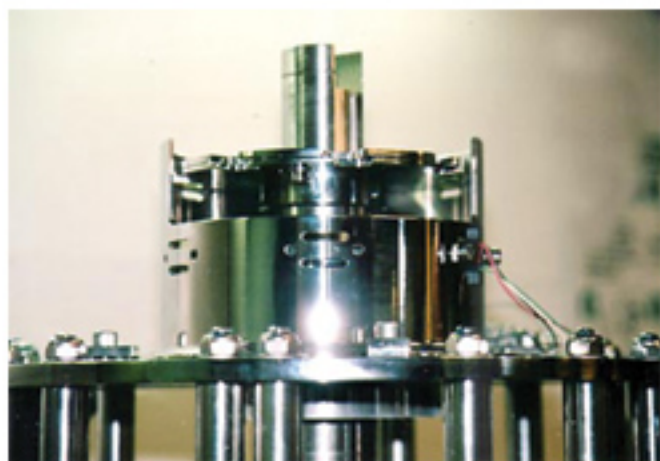
"There are a couple of other major factors that we won't go into here, suffice it to say that our current prototype demonstrates 1500% more "out" than "in"... "

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John Christie (left) is the co-founder, CEO and chairman of Lutec (Aust.) Pty Ltd.

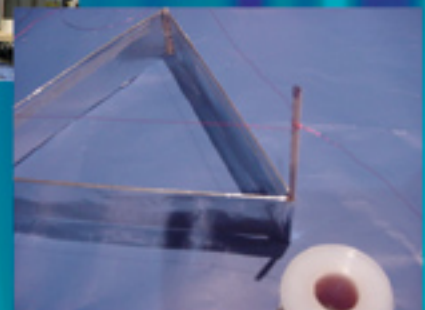
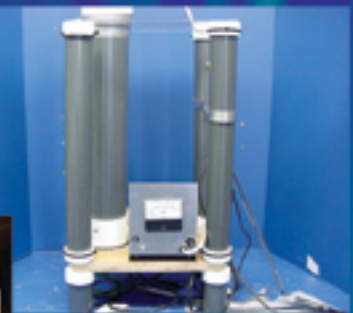
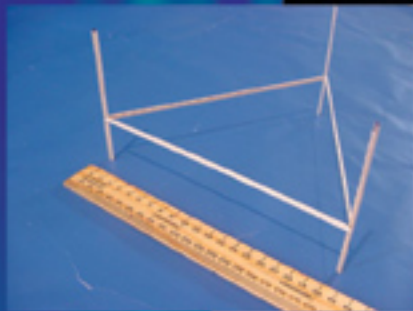
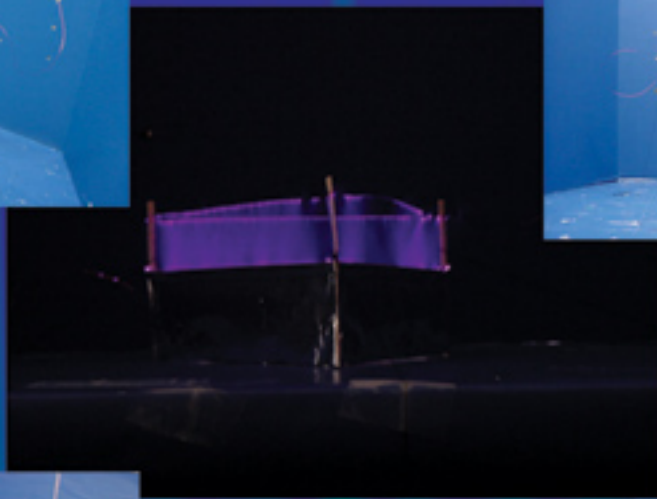
Ludwig (Lou) Brits (right, above) is the co-founder, managing director and head of development of Lutec (Aust.) Pty Ltd. He is Chairman and director of TTI Pty Ltd. TTI Pty Ltd is a state government recognised R.A.P. (remote area power) system provider.





# ***Electrogravity***

*by Tim Ventura  
tventura@attbi.com*



***In this issue a report by Tim Ventura, USA on experimenting with asymmetrical capacitors.  
[www.americanantigravity.com](http://www.americanantigravity.com)***

## NEW ENERGY TECHNOLOGIES #6

1. Large-Scale Shakharov condition, **David Noever and Christopher Bremner**
2. Matter as a resonance longitudinal wave process, **Alexander V. Frolov**
3. Physical Principles of The Time Machine, **Alexander V. Frolov**
4. Time Machine Project by **Alexander V. Frolov**
5. Kozyrev-Dirak radiation, **Ivan M. Shakhparonov**
6. The Electrical Vortex Non-Solenoidal Fields, **S. Alemanov**
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8. The Evolution of Lifter Technology, **T. Ventura**
9. Reality and consciousness in education and activity, **A.Smirnov**
10. Old new energy, **Y. Andreev, A. Smirnov**
11. On the influence of time on matter, **A. Belyaeva**
12. Life without diseases and ageing-preventive electrical bio-heater features, **A. Belyaeva**
13. Technical report, on Belyaeva's high efficient ceramic heater, **Sh. Mavlyandekov**
14. Fundamental properties of aether, **A. Mishin**
15. Effect of Magnetic Blow Wave Field on Wine Systems, **I. Shakhparanov and others**
16. Nikola Tesla and Instantaneous Electric Communication, **V. Korobeynikov**
17. The United Gravitation theory, **I. Kuldoshin**
18. New Sources of Energy from the Point of View of Unitary Quantum Theory, **L.G. Sapogin, Yu.A. Ryabov, V.V. Graboshnikov**
19. Antigravitation Force and antigravitation of matter. Methods of its creation, **A. K. Gaponov**
20. The capacitor, which has energy of atomic bomb (Review of A. Gaponov's research)



consequence of many commonly accepted concepts and dogmas of the modern “scientific perspective of natural phenomena”. This crisis situation in modern physics is a direct consequence of many conservative scientific viewpoints, unfortunately supported and protected by modern official academic science. The evolution of our consciousness has been influenced by many undoubtedly well known experts and has been evolving for a long time in the environment of specific scientific vacuum and requires immediate revival. Even methods used for dissemination of new knowledge should be improved, if one actually wishes to accelerate the progress of Humankind.

The perspective for practical applications of new previously unknown scientific phenomena and effects looks very attractive, and they may be achieved by cooperative efforts of the human intellect. New breakthrough technologies of the 21<sup>st</sup> Century will require serious changes of many commonly accepted concepts and dogmas in fundamental physics. This process of progressive development cannot be stopped.

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# Large-Scale Sakharov Condition

David Noever and Christopher Bremner

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Mail Code: ES76, Huntsville AL 35812

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## Abstract

Recent far reaching theoretical results have used the quantum vacuum noise as a fundamental electromagnetic radiation field to derive a frequency ( $\omega$ ) dependent version of Newton's gravitational coupling term,  $G(\omega)$ . This paper reconciles the cut-off frequency with the observed cosmological constant, and then briefly puts forward a realizable laboratory test case in the 10 - 100 MHz frequency range. One analogy is drawn between the classical vacuum energy experiments with attraction between two closely spaced plates (Casimir cavity) and the arbitrarily dense material boundaries possible in Bose condensates, such as irradiation at MHz frequencies of superfluid helium or superconductors.

## Theoretical Background

Zel'dovich [1] first suggested that gravitational interactions could lead to a small disturbance in the (non zero) quantum fluctuations of the vacuum and thus give rise to a finite value of Einstein's cosmological constant in agreement with astrophysical data. Using dimensional analysis and the suggestion by Zel'dovich, Sakharov [2] derived a value for Newton's gravitational constant,  $G$ , in only one free parameter, frequency,  $\omega$ :

$$G \sim c^5 / h \int \omega d\omega \sim 1 / \int \omega d\omega$$

where  $c$  is the speed of light and  $h$  is the Planck constant. The free parameter in frequency when integrated over all values from zero to high frequencies must contain the usual integration cutoff value (Planck frequency on observable electromagnetic phenomenon).

Puthoff [3] and others [4 5] have extended Sakharov's condition in a relativistically consistent model to determine constants of proportionality. His model derives an acceleration term in first order expansion (in flat space time), then equates inertial and gravitational mass (by the equivalence principle) to make contact with the gravitational constant,  $G$ , directly as:

$$G = (\pi c^5 / h \omega_c^2) \sim 1 / \int \omega d\omega$$

which is the Sakharov condition [2,3]. This paper revisits the meaning of the cutoff frequency,  $\omega_c$ , for radiation interactions, of which the quantum vacuum [6-10] and

Planck frequency are only the leading terms, and for which linear combinations of forces can introduce other plausible frequencies. One purpose of this reexamination is whether the resulting gravitational coupling constant,  $G$ , can be reconciled with the anticipated energy density of the universe [11] without resorting to extreme space time curvature and thus yield enough critical density to contain the expansion of the universe. Finally we particularize the case to the high-density fluctuations possible in Bose condensates [12], a potential experimental test case for how the effects of vacuum noise might manifest observably.

One far-reaching consequence of the vacuum energy model is the attractive force of gravity becomes reducible to the radiative interaction between oscillating charges, e.g. the zero point field (ZPF) applied to subatomic charges. Mass and inertia arise from the fundamentally electromagnetic ZPF oscillations.

This random background gives the usual quantum mechanical energy spectrum from particle field effects:

$$\rho(\omega)d\omega \sim \omega^3 d\omega$$

a very important dimensional relationship, since the third power in frequency avoids anomalous Doppler shifts from velocity boosts, or stated alternatively is the correct spectra for a Lorentzian (non accelerated) invariant radiation field [13].

More specifically, the energy spectrum [3] can be written as:

$$\begin{aligned} \rho(\omega)d\omega &= [\omega^2 / \pi^2 c^3] [h\omega / 2] d\omega = \\ &= h\omega^3 / 2\pi^2 c^3 d\omega \sim \omega^3 d\omega \end{aligned}$$

which is an expression in the first parenthesis of the density of the normal modes and in the second parenthesis of the average energy per mode. When this energy density is integrated over all frequencies, the  $\omega^3$  divergence produces well known infinities in the integration limit of high frequencies, thus an assumed cutoff frequency (appropriate to experimental observation limits at the Planck frequency), is usually introduced:

$$\omega_p = (c^5 / hG)^{1/2}$$

For mass,  $m$ , moving in an accelerated reference frame  $g = -a = Gm/r^2$ , the resulting energy spectrum includes a gravitational spectral shift [3],

$$\Delta\rho'(\omega)d\omega = h\omega / 2\pi^2 c^5 [Gm / r^2]^2 d\omega \sim 1/r^4 d\omega$$

a kind of short range ( $1/r^4$ ) gravitational energy shift, but electromagnetic in origin when zero point

fluctuations are included. (N.B. To account for equal gravitational mass effects in neutrons and protons, the ZPF oscillations must involve subatomic charges, or 'parton' effects. The assumption derives from high frequency interactions of ZPF wherein these subatomic particles are asymptotically free to oscillate as independent or free particles as quantum noise).

A further far reaching consequence [3] is mass itself becomes interpretable as a dependent quantity derived from a damped (with decay constant  $\Gamma$ ) oscillation driven by random ZPF:

$$m = \Gamma c^3 / G = 2h\Gamma / \pi^2 c^3 \int \omega d\omega$$

with the only two free parameters, the damping factor  $\Gamma$ , and again the frequency,  $\omega$ . The internal kinetic energy of the system contributes to the effective mass.

This leads to an overall average spectral density, written in terms of mass as:

$$\Delta\rho'(\omega) = m^2 c^5 \omega / 2h\omega_c^4 r^4$$

for the electromagnetic field distribution near ( $1/r^4$ ) to the mass,  $m$ , which in detail is half electric and half magnetic.

One additionally attractive feature is the correspondence between this derivation and the view of gravity as a dynamical scaleinvariance breaking model (e.g. symmetry breaking near the Planck mass energy [14]). A final result includes the force calculation between two ZPF radiation oscillators of the correct form yielding Newton's average force law

$$\langle F \rangle = -Gm^2 / r^2$$

Thus, for a Newtonian force to first order in a flat space time, Sakharov [2] could be credited for proposing gravity as not a fundamentally separate force and Puthoff [3] and co workers [4-5] applied the vacuum electromagnetic field to equate gravity to a long-range radiation force (e.g. van der Waals like force). Higher order oscillatory gravity modes vary as  $(\sin[\omega_o / \omega_c])^2$ .

To first order, a weak  $G$  coupling constant,  $G = (\pi c^5 / h\omega_c^2)$ , appears for high frequency cutoff at the Planck scale. A corollary in analogy to electromagnetic shielding by ordinary matter can be rationalized as the problem of frequency mismatch at high Planck frequencies, e.g. ZPF cannot be fundamentally shielded. In other words, frequency mismatch precludes gravity shielding by matter.

The purpose here is to revisit the only free parameter, the frequency cutoff, more in the spirit of a mass resonant frequency. The motivation for this approach

can be summarized as: 1) the generality of other complementary radiation effects without relying on ZPF alone (e.g. other isotropic, homogeneous radiation sources); 2) the weak coupling constant,  $G$ , yields a vastly smaller than observed size of the universe (e.g. too small cosmological constant) when the Planck frequency is used as a cutoff value; and (3) the particle mass,  $m = \Gamma c^3 / G$ , can be viewed as a renormalized or 'dressed' mass with a resonant interaction potential that is frequency dependent in its coupling constant,  $G$ , and with 'bare' mass that is large,  $m_o \sim (m_p^2 / m)$ , where the experimentally unobservable,  $m_p = (hc / G)^{1/2}$  is the Planck mass.

In particular, why this large 'bare' mass does not generate a large gravitational field is not a unique anomaly in the Sakharov derivation, since similarly large vacuum point energies are common to field theories. The important point is that the derivation  $G(\omega)$  is general however to any isotropic radiation field with the Lorentz invariant energy spectra  $[\rho(\omega) \sim \omega^3]$ , thus the candidates for the cutoff frequency of the particular radiation source can be interpreted as a Planck scale only if the rest mass,  $m_o$ , is not composed of many terms, rather than just the ZPF leading term. Since the ZPF is akin to a van der Waals force [3 5], polarizability (in charge and mass) must be considered, but without also excluding any number of linear combinations that might have alternative cutoff frequencies,  $\omega_c$ , or damping terms,  $\Gamma$ , 'ala particle physics interpretations for resonant masses during renormalization. In other words, once a gravitational energy spectrum,  $\rho(\omega)$  is postulated that is Lorentzian invariant, many fundamental sizes (or corresponding frequency values) are smeared (or dressed) by any number of characteristic frequencies between zero and the high frequency electromagnetic (Planck) cutoff  $\omega_p$ . Quite simply, is the expression,  $\omega_c = \omega_p$ , a requirement for all radiation sources?

Many types of particle oscillations may satisfy the general requirements of a Sakharov condition, each having a characteristic mass (and energy) as in calculating the mass of any fundamental particle at its resonant frequency (including underlying partial charges or dense bosons). This brings the calculation to a consideration of the high density fluctuations characteristic of a Bose condensate [15 19]. While the high density variation may intrinsically be of interest, the exploration has more to do with reconciling the ZPF interpretation of the Sakharov condition with the observed cosmological constant [14].

A "top down" view of calculating the cutoff frequency imposes the self consistency test for the cosmological constant,  $\Lambda$ , from the outset. To calculate, the total frequency integrated energy density of the universe must be included:

$$\rho(E) = \int \rho(E) dE = h\omega_c^4 / 8\pi^2 c^3$$

which must have a mass equivalent, contribute to the universe's curvature, and thus have a fundamental relation to the critical density to contain the expansion of the universe [14 15]. The mass - equivalent ZPF to reach the universe's critical density [15],

$\rho \sim 10^{-29} \text{ g cm}^{-3}$  would necessarily limit the cutoff frequency for gravity to the value,  $\omega_c < 7 \cdot 10^7 \text{ s}^{-1}$ , or between 10 -100 MHz.

A higher frequency greatly overshoots the cosmological constant,  $\Lambda$ , and induces extreme curvature in the universe. This problem has been cited frequently and stated most bluntly, as either ZPF or the cosmological constant requires revision. The relevance here arises from similarly large positive coupling terms in quantum gravity [15], which also generate a local gravitational Instability for typical upper limits on the cosmological constant,  $\Lambda/8\pi G < 10^{12} \text{ cm}^{-4}$ .

Rather than to dwell on the inconsistencies that plague attempts to reconcile quantum gravity, we particularize the problem to a case where the restriction to Planck scale becomes less clew, namely the high density fluctuations and universal scaling introduced in a Bose condensate. A Bose condensate, such as superfluid helium or superconductors [15 19], becomes of potential interest, mainly because of its arbitrarily dense boundaries and the classic Casimir experiment [20 22] which allows such dense material boundaries (two closely spaced conducting plates), if available, to modulate the background quantum fluctuation of ZPF. In other words, the matter-ZPF interaction becomes measurable by the observed attraction between two material boundaries. What dense boundaries might generate in Bose condensates remains a subject of great interest.

The significant case to investigate is whether Casimir-like interactions [20 22] will not only couple to ZPF radiation at a scale comparable to the quantum noise (or other radiation field), but also alter the value imposed by the Sakharov condition for  $G$ . It remains an open question whether this potential coupling interaction shares, as in ordinary critical phenomenon, the density correlation function,  $\Phi$ , that is both independent of the coupling strength (or universal in renormalization) and consistent with the observed average energy density of the visible universe.

Thus the purpose here has bow to restate the Sakharov condition in the gravitational coupling constant,  $G$ , based on its only free parameter, a frequency cutoff,  $\omega_c$ . Any potential relevance arises from similarly large values for the positive coupling term in quantum gravity, which generate conditions for a local gravitational instability for typical upper limits on the constant,  $\Lambda/8\pi G < 10^{12} \text{ cm}^{-4}$ .

To restate the Sakharov condition, matter in the vacuum provides boundaries for reduced ‘Casimir like’ modes available for otherwise isotropic radiation from quantum fluctuations (broad spectral noise). That this view reproduces Einstein gravity has been examined, including the full relativistic derivation [4-5]. The details of the appropriate mass, however, remain buried in the kinetic energy of general internal particle (‘parton’) motion [3]. Any appeal to a specific parton representation is limited only by essentially free particles with high frequency interactions, including underlying partial charges or dense bosons. The basis of considering arbitrarily high-density fluctuations in Bose condensate in analogy to the ZPF-Casimir experiment remains both an empirical and theoretical case to examine. There exist laboratory scale cases [15-19] where resonant radiation in the required 10-100 MHz range appear to produce anomalous effect for such Bose condensates as superconductors, but further work to confirm these results would be needed. In other contexts, these effects have been discussed as the Schiff-Barnhill effect for superconductors interacting with a gravitational field [23], but for the static rest mass rather than an effective mass in a conduction band.

### Experimental Propositions

J. Weber [24,25] proposed the use of a superconducting Bose condensate for gravity wave detection, principally because of its potentially higher signal to noise ratio in carrying electrical signals upon length dilations in a relativistic framework for gravity waves travelling near the speed of light. W. Weber and Hickman [26] derived an experimentally testable relation based on torquing of a charged capacitor parallel to a gravity field, with

$$\tau = 2E_g / \pi[\alpha/(1-\alpha)^{1/2}]$$

where the capacitor will rotate relative to the gravity vector, for  $\alpha = 2GM / rc^2$ , is Schwarzschild radial coordinate [ $dR = dr(1-\alpha)^{1/2}$ ],  $E_g$  is dependent on the capacitor charge and geometry of the plates,

$E_g = [Q^2 d / 2\epsilon WL(1-\alpha)^{1/2}]$ , for a plate separation, and radial dimensions,  $W$  and  $L$ , charge  $Q$ , and  $\epsilon$  the permittivity of free space. For plate separations of 2 mm on Earth, the maximum torque is approximately

$\tau = 10^{-12}$  Nm, when charged to 2/3 dielectric breakdown. While not entirely promising for detection of such low torques, the large separation (2 mm) distance between capacitive plates naturally prompts generalization to the classic Casimir force [21] experiments only recently confirmed experimentally [20]. In particular, we rewrite the torque values to include the frequency terms derived with the Sakharov condition

$$[G = (\pi c^5 / h \omega_c^2)]:$$

$$\alpha = 2M\pi c^3 / h \omega_c^2 r$$

The appeal of this formulation is that a frequency dependent torque is derived, which further makes

contact with proposals to modulate the Casimir capacitive plates for continuous extraction of energy [27]. This result requires further investigation experimentally, particularly to compare with previous reports for anomalies in AC- tuned electrical capacitors [28].

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# The Problem of Electron and Physical Properties of Time: To the Electron Technologies of the 21<sup>st</sup> Century

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*"...it is necessary to periodically subject to the deepest revision the principles, which were recognized as final and were no longer discussed".  
Louis de Broglie*

## Abstract

The results of an approach based on the synthesis of standard quantum electrodynamics and of the ideas of self-organization in physical systems are briefly outlined. The quantum model of electron as an open self-organizing system is constructed, with the physical mechanism of self-organization consisting in the back influence of the own field created by electron on the same electron. The own field is considered as a physical property of electron, intrinsically inherent in electrically charged matter, which is included in the definition of the particle from the very beginning. The own field of electron endows the particle with wave properties and represents a bearer of superluminal signals, which can be used for the creation of qualitatively new communication systems. Because of the inseparable link between space and time, the force in relativistic mechanics is the cause of change not only of the velocity of particle, but also of the course of time along the particle's trajectory. For this reason the flow of time in some area of space depends on the character of physical processes, occurring in it, and, therefore, time can be controlled by slowing down or accelerating its course with the help of material processes. The conclusions of the paper are not in conflict with the special theory of relativity (STR); they are a direct consequence of relativistic equations of motion and represent an

essential development of the generally accepted notions about space and time. At present all the necessary prerequisites are available, both theoretical and technical, for the practical mastering of the own fields of particles and of the physical properties of time.

## 1. Introduction. The Problem of Electron and Future Outlook

Electrodynamics, what is this? What is its value for man? Electrodynamics is the theory of electromagnetic interaction, one of four interactions existing in nature. Its role in the life of society is seen from the fact that the most part of natural phenomena, which we encounter at every step, is of electromagnetic origin: it is due to the interaction of electromagnetic field with electrically charged particles entering into atoms and molecules. It is fair to say that electromagnetism plays a crucial role in the life of mankind as it determines the ways of technical advance of society [1].

The key problem of quantum electrodynamics is the problem of electron, which can be formulated as follows: to construct from the first principles a non-contradictory model of electron, which takes into account experimental facts, i.e. to find the dynamical equation capable of describing the unique physical properties of electron, its internal structure, its behaviour when it interacts with electromagnetic field.

Electron was discovered a little more than 100 years ago, in 1897. With discovering the electron the revolution in physics began, which has resulted in unprecedented technical advance of society. The summit of development was reached in the middle of the 1950s and then the long period of evolutionary development followed, when new physical principles were used to describe various physical processes and phenomena. The violent development of physics became slower in the 1970s and was replaced by stagnation in the subsequent years. The stagnation in electrodynamics continuing already over a period of several decades is gradually giving place now to a new ascent. The new scientific revolution is starting, which is associated with electron again, much as it happened hundred years ago. The reason is that electron is the most unique particle storing in itself the deepest mysteries of nature and the degree, to which they are disclosed, determines the

wants to stay anonymous, until his patent application is done and university verification tests will be done). The claims are: 1200 Watts coil out with about 1076.4 Watts in into the driving motor at 3450 RPM. 8 amps 117volts at no load 9.2 amps 117 volts at full load. The output of about 1200 Watts is already a total overunity operation! As they just increase the input power by about 140 Watts only between idle and load state and they get 1200-Watts output it seems indeed a case, where Lenz law is violated! This generator also has NO motor effect! If you supply current to the coil, the permanent magnet in the center will not rotate; cause the flux just stays inside the toroid core! There you can see, that the back drag does not influence the mechanical rotation of the magnet!" Stefan used very good criterion to prove high efficiency of the design: **There is no back-torque effect! It is most important aspect of Gramm's generator.** You can contact directly Stefan Hartmann: Keplerstr. 11 B, 10589 Berlin, Germany. Tel: +49 30 345 00 497, FAX: +49 30 345 00 498 email: harti@harti.com info@ccard.net (Please, note: Dr. Harman referred to my old web site www.time-machine.spb.ru which is closed now).

So, basic principles of MEG and  $\Phi$ -machines are the same. It was patented more than 100 years ago. Primary magnetic flux is topologically separated in two (or more) fluxes, which are mutually compensated in the ring core. Advantages of MEG are absence of moving parts since special input coils produce changes of primary flux. Also level of saturation in ferromagnetic material obviously should be corresponding to intensity of primary magnetic field, which is created by the permanent magnet, Fig.4.1.

Besides MEG the same principle can be (and already was!) realized in many other systems. So, there is no any news in the USA patent #6,362,718 granted for "The Motionless Magnetic Generator". What did they claim? You can find it in the patent: "The first input coil and the first output coil **extend around portions of the first**

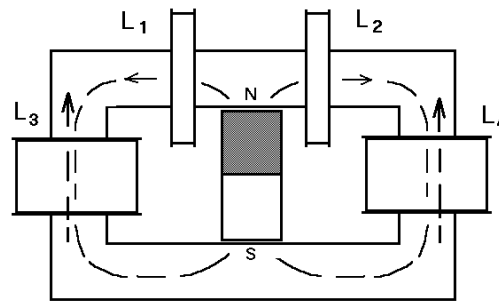


Fig.4.1

**magnetic path**, while the second input coil and the second output coil **extend around portions of the second magnetic path.**" Yes, it is the same bi-directional principle we discussed above: two parts of the magnetic flux and each coil produce effect to reduce flux due to this superposition.

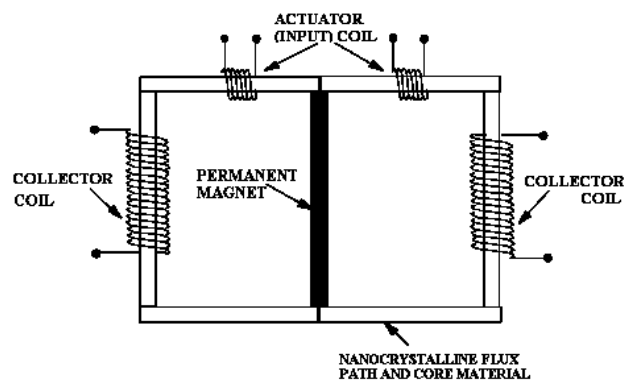


Fig.4.2

Diagram of prototype by Bearden.

***In conclusion I'd like to confirm our sincere interest to develop joint work with all new energy research teams if they are not trying to obscure the issue of the technology by means of complex theoretical constructions and common words about zero point energy.***

## Matter as a Resonance Longitudinal Wave Process

Alexander V. Frolov

### Abstracts

There is experimental data on gravitation anomalies for cases of resonance irradiation of the Bose condensates (superfluid helium or superconductor) at 10-100 MHz frequencies. It is developed by the author in frames of his aether theory that can be used for practical applications in aerospace and new energetics.

### ZPF or aether fluctuations

The fundamental electromagnetic radiation field (Zero Point Field) ZPF or the quantum vacuum noise is a

recently accepted physical notion. In the article [1] David Noever and Christopher Bremner used it to derive a frequency – dependent version of Newton's gravitational coupling term G. On the other hand we can consider the quantum vacuum noise as aether fluctuations. Dr. Alexander Mishin [2] described experiments on registration of these processes by means of special equipment. Both approaches (ZPF and aether fluctuation) allow to conclude that mass and inertia arise from these oscillations. However if we are considering the oscillation as some aether process then we can assume and describe some physical mechanism of this process.

One of consequence of the vacuum energy model, which is described in [1] is that "the attractive force of gravity becomes reducible to the radiative interaction between oscillating charges..." Let's clarify which kind of radiation can be created by oscillating electric charges.



There are many different sources to find the answer on this question and one of them is the article by Prof. Kirill P. Butusov [3] on symmetrization of Maxwell's equations and practical methods of generation of longitudinal waves in vacuum. So, ZPF model has a direct relation with the aether model since indirectly it leads to the question of longitudinal waves in vacuum. Physically they are waves of density of energy and in the aether model the waves are areas of more dense and more rarefied aether. Let's note that there are standing waves besides moving waves.

To consider the interaction of some mass particles and the fundamental field the notion of subatomic charges "partons" was introduced [1]. So, the mass itself "becomes interpretable as a dependent quantity derived from a damped oscillation driven by random ZPF" [1]. The authors wrote about "internal kinetic energy" of the mass particle and it can be considered as a function of ZPF oscillation frequency. In the aether theory of mass there is a similar notion of "aether vortex", which represents some cyclical process of some frequency and it is possible to calculate its kinetic energy. This aether vortex model of matter elements allows to assume real methods to change parameters of vortex and to get changes in parameters of existence of the matter. On the other hand we can discuss the possibility to change some physical parameters of aether in areas of the vortex to get the same result. This possibility follows from the well-known N. Kozyrev's experiments, which were named "investigation of active properties of time". N. Kozyrev used choral (temporal) approach in his theory. We have to change his notion "the density of time" to "the density of aether" to get a direct link between his experiments and the aether theory of mass.

N. Kozyrev and others have [4,5,6] experimentally demonstrated that irreversible processes in matter produced changes of aether density in the area of the experiment. Detectors of different type can register this change. It is obviously that any matter element (i.e. the aether vortex) in this area of changed aether density should get more inner (kinetic) energy or slow the inner motion. From the choral point of view these are changes of inner time of this matter element.

### Gravity shield

One more interesting point that is discussed in the article by Noever and Bremner [1] is a problem of gravity shield. The authors show that resonance interaction with ZPF produces "the particle mass" and it can be viewed as "a renormalized or "dressed" mass with a resonant interaction potential. Similar resonance approach is used in the conception of de Broglie's matter waves. Also the authors [1] mentioned the existence of an experimentally unobservable mass. In this case ZPF cannot be fundamentally shielded by matter since "frequency mismatch precludes gravity shielding by matter" [1]. The only way to get screening of ZPF fluctuations seems to be very complex: it is necessary to provide frequency matching for whole wavelength band of the oscillations.

I think some specialization is necessary here to explain experimental gravity anomalies with Bose condensates experiments (superfluid helium or superconductors): **special process in matter can be used as the gravity screen and this approach does not involve the frequency-matching problem.**

We have concluded above that any matter element is a resonance process and its energy is derived from ZPF. It is useful to note that these are longitudinal wave oscillations of energy density in aether. In this case, the gravity shield problem can be solved in frames of the aether vortex conception of matter.

The longitudinal wave is a moving (or standing) areas of rarified and thickened aether. Let's consider the moving wave, which is responsible for gravitation attraction effect. How can we stop, re-direct or reflect longitudinal wave in aether by means of aether vortexes (matter elements)? **We can produce interaction with this wave only by means of other longitudinal waves.**

In macro-level this idea can be realized as longitudinal wave generator. Electromagnetic processes, which can be used as sources of directed longitudinal waves, are known and some of them are described in [3]. In other way the gravity shield can be produced as longitudinal waves generated by natural aether vortexes (i.e. by matter elements) if the matter exist in a special excited state, for example for cases of resonance irradiation of superfluid helium or superconductor at 10-100 MHz frequencies.

### Matter element as resonance process

In [1] the authors wrote that it is possible to calculate "the mass of any fundamental particle at its resonant frequency." There is the question: what is the general basis of whole spectrum of stable elements masses?

In 1996 the author published the article "The concept of mass process" [7]. At first in this work physical sense and notion of 3-dimensional curvature was introduced. By analogy with known mathematical notion of linear

curvature  $\rho_1 = \frac{1}{r}$  (where  $r$  is radius) and uniform

surface curvature  $\rho_2 = \frac{2}{r}$  it was proposed to calculate curvature of a 3-dimensional space as

$$\rho_3 = \frac{3}{r} \quad (1)$$

The radius  $r$  in this case means that in a 3-space there is some periodical process. In other words, 3-dimensional matter is a resonance process.

Further, de Broglie used formulations  $E=hf$  and  $E=pc$  (where  $p$  is momentum,  $h$  is Planck constant,  $f$  is frequency and  $c$  is velocity of light) to derive the following:

$$hf=pc \quad (2)$$

that allows us to get the well-known formulation

$$\lambda = \frac{h}{p} \quad (3)$$

There is another logical branch of this idea that leads to the understanding of the mass properties of matter as a resonance process. Instead of  $E=pc$  in [7] it was proposed to use  $E=mc^2$ . In strength of the wave-particle duality we can write the equation

$$mc^2 = hf \quad (4)$$

and from this equation the mass can be presented as resonance electromagnetic oscillations

$$m = \frac{h}{c^2} f \quad (5)$$

Let's note that  $f=1/T$ , where  $T$  is some period of oscillation. So, we can write the following

$$m = \frac{h}{c^2} \frac{1}{T} \quad (6)$$

where  $\frac{h}{c^2}$  is new constant between mass and period of time.

There is an important conclusion: any mass is a process and there is some period of time, which corresponds to this mass. In other words, there is no physical sense of time separate from some process of existence of mass. Product mass and period is a constant value, which was named as a chronal constant

$$mT = \frac{h}{c^2} = const \quad (7)$$

The chronal constant is a parameter of some real space and it is equal to  $0.73725 \cdot 10^{-50} [Js^2 / m^2]$

Also in this work [7] there was a demonstration of several examples of newly discovered physical law: spatial curvature of some natural objects (proton, planet, DNA molecule) is a whole number. There is some analogy with the nuclear physics notion of wave number. From this fact we can assume that main natural matter elements exist in main resonance states. For example, if Bohr radius is 0.52917 Angstrom, then we can find the wave-length  $l = \pi d$  and the linear curvature is  $\rho = 1/l = 3.0075 \cdot 10^9 (m)$  and 3-dimensional curvature of this object is  $\rho = 3/l = 1.0025 \cdot 10^9 (m)$  that is unit of mater, corresponding to simplest atom, i.e. unit matter engine. Let's note that it is near the unit and some distortion of 0.0025 means non-ideal resonance state of the system.

Calculations for planet Earth in [7] were based on the known period of orbital rotation  $T=31557600$  sec that corresponds to frequency of electromagnetic oscillations

$$f = 1/T = 3.168861 \cdot 10^{-8} (1/s) \quad (8)$$

and wave-length

$$\lambda = c / f = 9.46 \dots \cdot 10^{16} (m) \quad (9)$$

The curvature (if this wave-length is considered as radius of the resonator) is following wave number

$$\rho = 1057.00 \cdot 10^{-20} (1/m) \quad (10)$$

Also we can use other known data about the planet. Daily rotation period of our planet is known  $T=86400$  sec and we can calculate its wavelength  $\lambda = 3469,82(m)$  and corresponding curvature (wave-number). Sure, it is also a whole number with a good accuracy:

$$\rho = 2882 \cdot 10^{-7} (1/m) \quad (11)$$

The laws of physics in macro cosmos and micro cosmos are similar. From these calculations it was assumed that whole formation of mass spectrum of stable chemical elements of matter is determined by similar physical mechanism.

### Creation of mass

In short we can summarize that technology of longitudinal waves in aether is a real basis for creation of matter with mass and inertia properties. N. Tesla used this method to produce different objects: from ball lightning up to electrons. Velimir Abramovic says in his article [8]: "The principle of resonance and harmonic oscillation of aether seems to be so clear that all problems of modern physics, especially a problem of energy conversion, will be solved with its development. By means of his vacuum tube Tesla got protons, electrons and neutrons directly from aether and reproduced them at any distance. Instead of giving a possibility to the bundle of protons to move through space to some place, he created conditions for momentary appearance of arbitrary quantity of particles in the given place."

Any objects can be classified as aether vortex and parameters of this vortex determine its mass, electric charge and other properties of matter.

The "parton" as element of matter in [1] is a useful tool for description of physical properties of aether.

### Longitudinal waves in Woodward's experiment

In [1] the authors state that resonant radiation in the required 10-100 MHz range appears to produce

anomalous effects for such Bose condensates as superconductors. In my opinion it is a particular case of discussed above technology of longitudinal waves in aether due to possibility of transformation of transverse electromagnetic waves in longitudinal waves in the superconductors. This transformation in plasma is a well known physical mechanism.

More facts to prove this idea: by Woodward [9] there is a special requirement, i.e. the frequency of mechanical vibrations should be twice the frequency of electrical oscillations in the capacitor, which demonstrates the weight anomalies. But from the other hand it is a common rule for creation of longitudinal waves in plasma! Also it is a necessary condition for generation of parametrical oscillations! So, we can assume that basis of the effects in [1] and [9] is a generation of longitudinal wave in aether.

### Conclusion

Any element of matter can be considered as resonance process of aether oscillations, which are longitudinal waves. There is an analogy with description of these longitudinal waves and well-known matter waves by de Broighl. Experimenting on the longitudinal waves generation and especially experiments on standing waves to get gradient of aether pressure allows to develop gravity control technology.

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## Gerlovin's Theory of Activation

Alexander V. Frolov

*It is a review of the famous book by Ilia L. Gerlovin "Basis of unified theory of all interactions in matter" published in 1990, St.Petersburg, Russia. We hope this article let you discover some new aspects of physical vacuum structure to develop more new experimental methods. Comments made by Alexander V. Frolov, Editor.*

In [1] the author wrote about different methods to activate water solutions: mechanical, thermal, acoustic, magnetic and electrical. One of the known methods is an activation by means of electrohydraulic method. There is also some information about activation of other mediums, mainly liquids, but also some gases and solid bodies.

There are no theoretical explanations of these facts to explain all aspects of these phenomena. Furthermore, complexity of interpretation of these phenomena in frames of common physical notions induced some scientists to announce these phenomena as non-existing and "illegal".

Ilia L. Gerlovin formulated the physical principles of theory of activation of mediums on the basis of new physical theory, the Theory of Fundamental Field (TFF).

These principles are based on his two important conclusions from the TFF:

- a) "Space around us is not empty, physical vacuum consists of material physical objects, i.e. elementary particles of vacuum (EPV). These particles are responsible for main activation processes;
- b) Force interactions between atoms in molecule, between molecules in crystals has not spherical symmetry in the crystals of solid bodies, but an axial symmetry and the interactions are changing in time with very high frequency of about  $10^{18}$  Hz. This feature of force interactions also makes its own contribution to the activation of mediums." [1, p. 314]

So, it was assumed that the phenomenon of activation of mediums can be defined as anisotropy of force interactions, which leads to **"meta-stable state, which can be called *structurally activated state of the given structure*"**.

Here is some difference in principle between chemical term "activation", which characterizes a transformation of molecule or atom in some active state with an increased energy, which is sufficient to provide a chemical reaction. It is **energy activation**. Gerlovin described new notion, a **structural activation**: **"This phenomenon can be classified as some change of structure of activation object. With this, energy of molecule can have no changes, and active properties**

Coupled with aetherodynamics time conception, which was suggested by Alexander V. Frolov, the works on the control of space-time parameters gain the possibility for development and commercial application. As a theoretical basis there are those N. Kozyrev works where his conception of "time density" are replaced by that of "aether density" according to Frolov.

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## Physical Principles of the Time Machine

Alexander V. Frolov

Experimental success of research team headed by Dr. Vadim A. Chernobrov, Moscow was reported in [1]. The time course can be controlled as rate of any process in local space-time (inner space of the Time Machine). It can be decelerated or accelerated by means of special "converging electromagnetic waves". Ordinary waves move from the source whereas special "converging waves" move to some central point, i.e. into the focus of the system. In Chernobrov's design of the Time Machine this process is organized by means of several spherical envelops, which consist of several electromagnets. Electronic control unit controls the processes in this design. Dr. Chernobrov reported about 3% change of the time course in 4th version of the system, which was tested with a human inside. The goal of Dr. Chernobrov's work is to research the medical aspects and experimental investigation of the principles. Several important conclusions were obtained from the project: the time course can be controlled and character of the changes is different for acceleration and deceleration mode.

Other known publication and research projects on the same topic seem to be very far from any commercial and practically useful application. Obviously the topic is very new and fantastic for most of scientific community and at first we have to clarify the physical principles of the time control project, which is started by Faraday Labs Ltd.

In this project we believe that notion of time is one of possible description of real physical properties of our Universe. So, it is not mathematical abstraction but some aspect of physical reality and we can discover some physical properties of time. Russian astrophysicist N. A. Kozyrev [2] developed a theory of active properties of time and according to his point of view there are two properties: time course and time density. Prof. Kozyrev demonstrated experimentally that time density in area of some process (changes of matter) is dependent on entropy parameters of the processes. In [3] it was demonstrated that Kozyrev's experiments could be interpreted in aether theory and it has led to simple physical conclusions and clear experimental perspectives: **time course and its density can be explained and controlled as parameters of aether.** Directions of aether flow and density of aether are

subjects of experimenting with non-reversible changes in matter, for example, in crystallization or melting processes. Also it is possible to use special electromagnetic processes, for example, Chernobrov's "converging waves" or other longitudinal waves as methods of aether compression or rarefaction. If we assume that process of existence of elements of matter physically can be explained as aether vortex processes then its rate is a parameter of **aether income/outcome balance** (aether inflow in element of matter and aether outflow from the element of matter). It was also described in Time Rate Control (TRC) theory [3]. To control this balance it is necessary to develop technology of longitudinal waves generation, its focusing and resonance effects. The previous research and experimenting on the topic has been made by N. Tesla.

Let's assume that we have some technology to change parameters of time course. How should we organize this local space-time (what is spatial topology of the design)? There is a very interesting experiment to get the answer: rotation of a heavy cone (for example, lead cone) entrains surrounding aether, so a vortex appears, which is a toroidal formation of aether (rings). The rings can exist in space for a long period. The further question is: Why does the beam of light (laser beam) directed to the cone by tangent create a luminous ring? We can assume that due to natural properties of photons (light propagates along the geodesic line in space) some autonomous closed toroidal space should be created in such experiment. The next thought is: since space and any matter exist in time then we can speak about some autonomous time. The general conclusion is to be the following: autonomous 4-dimensional space-time can be created as toroidal aether vortex.

Here is point to note some aspects of research project by Prof. Robert Mallett, Connecticut University, USA. In fact, sometime next year, he hopes to produce the first piece of technology that eventually will allow him to build a time machine. By Mallett it will be a device that employs lasers "to twist space". Why is he going to close the beam of light? His theoretical background is knowledge about black holes, i.e. understanding of the connection between gravity and curvature of space-time. In Einstein's theory both matter and energy can bend space and time. So Prof. Mallett assumes that curvature of space-time can be changed not only by mass (like a black hole) but it can be affected by energy of photons. This has led Prof. Mallett to consider the possibility of using a circulating beam of light to twist space and to create closed loops in time. It is predicted that a spinning neutral particle, when placed in the ring, is dragged around by the resulting gravitational field [4]. From the

first view it is the same approach we have considered above (experiment with aether toroidal rings). But proposals by Prof. Mallett differ in principle from the aether conception.

The main aspect of this technology is a creation of autonomous (self-closed) toroidal space-time. Autonomous geodesic world line of this space-time is self-closed. Any photon should be circulating in this system due to its properties: photon is always moving along the straight line of the space.

More deep understanding of this technology follows from the explanation of photon as oscillation of aether. Any photon can be considered as result of relative motion of the matter (observer) in absolute space (immovable aether). Usually a photon is considered as moving object in space. But we can assume that observer is in the motion and the photon is oscillations of the absolute space (immovable aether). Which approach is more real one? Sure, it is more easy to consider a photon as moving object but let's remember fact of our real motion in the Universe and fact of the Universe expansion.

So, ideas by Prof. Mallett are very far from the **aether nature of the time phenomenon**. He follows the black holes theory and general understanding of space-time distortion due to mass or energy presence. Also he knows that a light beam should be closed in a ring. However Prof. Mallett is very far from physical basis of the effects. **The key of time rate control is technology of artificial aether flow, creation of aether vortex systems (AVS), management on density and direction of aether flow.** There are several technical methods to produce it. Any light beam should be curved in self-closed "light ring" if it is placed in a toroidal aether vortex and we can say that this system has own space-time.

What does "some changes of time course" mean? We can measure it as some changes of standard rate of oscillation process, for example, some stable wavelength of laser beam or quartz oscillations. There is a well-known experiment with two atomic clocks (one of the clocks is placed on the roof of some building and another one is placed on surface of planet). Due to vertical component of gravity the time course should be different and it can be measured. How can we organize difference in these measurements if both atomic clocks are placed in the same altitude?

It is necessary to consider gravity nature in frames of the aether conception. Two atomic clocks demonstrate difference in measurements due to difference in aether flow density. Hence, by means of aetherodynamics methods it is possible to control the rate of oscillation processes in the atomic clocks and in any matter (i.e. time course itself).

The aetherodynamics methods have a clear analogy with electrodynamics: **motion of charge produce field and there is the induction law**. Really, classical electrodynamics can be considered as particular case of the aetherodynamics. So, physical sense of any field

is stress or deformation (it is some static field) or oscillations of aether.

Let's introduce the notion of chronal (temporal) charge to consider some technical aspects. In electrodynamics we assume an electric charge as element of matter with positive or negative electric properties and we have to compare it with some reference (zero charge or test charge). Let's note that in any case we have to consider "charge of some particle" but not an "abstract charge". So, we can postulate that any element of matter has **zero chronal charge** if it is moving from Past in Future with standard (usual for measurements of surface of our planet) time course. If the time course (i.e. existence of some element of matter) is decelerated then it can be measured as decrease of standard oscillation frequency of the matter. Time course acceleration means some increase of standard oscillation frequency of the matter. Let's determine that in the first case it is negative chronal charge and in the second case it is some positive chronal charge. Atomic clock is one of possible methods to measure zero chronal charge or to find some relative positive or negative difference.

**It is predicted here that motion of chronal charge should produce a chronal field.** Some provisional data was received by Frolov from simple experiments on the rotation of a heat source. Accelerated motion of chronal charge (changes of density of chronal current) should produce aethero-induction effect that is an analogy (or more general case) of Faraday's induction effect. This effect can be detected as secondary (induced) deceleration of time course in nearest area of accelerated time matter. Another case is a secondary (induced) acceleration of time course in the nearest area of decelerated time matter.

Technical realization of aethero-induction method seems to be very close to idea, which is described in classical epic "Back to the Future". At first, it is necessary to create or to collect some chronal charge in a "flux condenser" and then to accelerate it in space up to some velocity. According to the aether conception, this creation of the chronal charge is a real technical process.

It is assumed that estimated chronal effects are demonstrated as some threshold field, i.e. space-time has some stable discrete energy levels and changes of its curvature should have discrete threshold mode. All new aspects disclosed in this paper are the subject of a patent process. Faraday Labs Ltd organizes experimental program on the topic. Practical application of this technology is new energy systems and propulsion methods.

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investigated completely yet. It was found also that harmful effect on biological systems is not related to the process of movement in Time itself but is a result of the difference of the Time rate value in various parts of a body (a biological system).

Inside of the laboratory setup it was also discovered that Time could be changed with some inertia. Areas of space having different Time rates have vague borders. With sufficient difference in Time rate the human can see an area with a different Time rate as some white mist. Higher the difference – the mist is denser, that can be used as an alarm signal for biological systems. It is possible to consider Time-travel as possible and (after experiments with mice) there are reasons to suppose it will be safe for travelers if they follow certain rules. It is especially necessary to emphasize: the trips through Time (due to new discovered properties of Time) can't affect the Past and they can't change our past history. All the so-called paradoxes for the traveler in Time (for example when "he meets himself in the Past" or "he kills his grandfather in his childhood" have clear solutions in 3-dimensional Time.

It is possible to consider as a proven fact that Time has more than one dimension, i.e. O. Bartini's theoretical calculations are confirmed by these experiments: Time has 3 dimensions. Hence our Earth world can be considered as a 6-dimensional object: length, width, height, age or date of Time, variant of a History or erosion of Time, density or rate of Time. The concept of "the Arrow of Time" as fourth dimension (moment of Time) is a particular case of the concept of sixth dimension (rate of Time) that leads to the physical concepts of gravitation and energy and they are simultaneously connected. Concepts of the "Einstein-Rosen bridges" known since 1916 or "worm-holes"



introduced into science by John Willer in the 50's, are travels in 5<sup>th</sup> and 6<sup>th</sup> dimensions, i.e. the "classical" Time travels, which were described by H. Wells.

*Editor's: As the reader could note, the author does not disclosure the secrets of the TM design. From the photo you can see the electromagnets, which form the regular stereometrical construction as well as the cables from the TM to the control unit. Dr. Chernobrov mentioned the converging electromagnetic waves only. So, to understand how it works, it is necessary to get a clear notion of the converging electromagnetic waves. Let's imagine the ripple effect created by a stone in the water. The waves move from a central point to periphery. The converging waves are just an opposite process: the waves move from periphery to the central point. Is it possible in Nature? Yes, sure. Dr. Chernobrov wrote: "Let's throw a hoop on the water and inside of the hoop we'll see converging waves." The Time Machine technology by Dr. Chernobrov is based on the similar principle.*

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## Time Machine Project

Alexander V. Frolov

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**May 29, 2002**

Faraday Labs Ltd and Dr. Vadim Chernobrov have signed the agreement on scientific-research work on investigation of active properties of time.

In the course of the previous experimental works, carried out by Dr. Chernobrov's research team during the period from 1984-2002, four versions of Time Machine had been made and tested. At these devices (the biggest system is about 1 meter in diameter) the effects of deceleration and acceleration of time course were created and measured. The principles of control of time course velocity were based on the



**Alexander V. Frolov, General Director Faraday Labs Ltd and Ph. Dr. Vadim A. Chernobrov have just signed the Contract**

interconnection of electromagnetic processes and physical properties of space-time. Special electromagnets, operating in pulse mode, are placed at the spherical frame. They create the so-called "converging wave", which by Alexander Frolov is a longitudinal wave in nature.

Coupled with aetherodynamics time conception, which was suggested by Alexander V. Frolov, the works on the control of space-time parameters gain the possibility for development and commercial application. As a theoretical basis there are those N. Kozyrev works where his conception of "time density" are replaced by that of "aether density" according to Frolov.

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# Kozyrev-Dirak Radiation

## Its influence on animals

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In the experiment with animals, that were made in the Center of Oncology Researches (COR) at the Russian Academy of Medical Sciences (RAMS), on the applying of Kozyrev-Dirak's Focused Radiation (KDFR), it has been found that KDFR decreases the quantity of glucose in the blood, reduces its tenacity, promotes the strengthening of immunity and the rise of the quantity of marrow cells.

### Introduction

This time researchers in Russia and abroad experiment on ball lightnings by means of nonoriented circuits, which are similar to the electric analogues of Mobius band, also by means of Klein bottle and their combinations. Non-oriented fields are investigated very intensively now. Accordingly, organisms of the researchers, who observe the interactions of such fields with a matter, are also changed, thus they should take it into account on making such experiments. The aim of the article is to show in which way the fields of nonoriented circuits influence on animal and human organism. Besides the article has for its object the prevention of negative consequences, which can appear for experimenters through the research process.

Experiments with animals that were carried out in 1992-1993 in Russian Academy of Medical Sciences (RAMS) had not been published in proper time because there were no quantitative methods of radiation detection. Later, in 1996 they were developed [1] and KDFR parameters were measured in that geometry, which were applied in RAMS. In 1998 powerful and super-powerful KDRF sources were obtained. These sources were applied (and are applied now) in the researches at the controlled radioactive decay [2]. Kozyrev and Nasonov [3] and later also Lavrentyev with the collaborators [4,5] have proved experimentally that the Sun and some stars generate the radiation, which has early unknown properties. We suggest that the radiation, discovered by Kozyrev [3], and the radiation, which is researched by us and by other experimenters with nonoriented circuits, are of the same phenomenon. At first, it should be noted that on interaction between Kozyrev-Dirak radiation (KDR) and a matter made it colder. As it was demonstrated above [1], cooling effect can be explained by matter re-magnetization under the influence of KDFR beam (adiabatic demagnetization). According to the still unpublished data, KDFR bunch destroys matter lattice by the way of it's moving. However, after a couple of week matter reconstructs it to the almost tabulated points, without defects, blockness and other damages, which are peculiar to

other natural crystal structures. **In the definite sense nature demonstrates the way to rejuvenate compound structures.** As it is well known, vital functions of biological systems on the Earth depend on the structure and composition of water. Therefore, we have a right to expect considerable changes in the vital functions of biological organisms under the influence of KDFR.

### Experimental Devices

In experiments with animals there were applied the devices, which concentrated KDR (KDCR) and had 50 Wtt aggregate electrical power. The description is presented in [2].

KDFR indication was obtained by calorimetric method [1], along the way of movement of the main bunch (with 10 cm across diameter) and at angle of 45° from the geometrical axis of a device.

### Researches of Bleeding Duration

Let us consider KDFR influence on the blood composition of animals. At the experiment 24-28 gram weighting, pelletized fed male mice were used. In the process of the experiment it was discovered that 3 and 4 hour processing of mice with KDFR at the distance 2.5 m and at the presence of animals in the sphere of maximum radiating power, caused some changes of fibrillation system. The bleeding duration was determined according to Duke method. Two groups of animals were used at the experiments: a group with 4-hour duration of KDRF processing and a group with 6-hour duration. Time of bleeding was considered in dynamics at 1, 2, 7, 14, 21, 28 and 35 day (Fig. 1). The bleeding duration of the intact animals was determined by the value  $128 \pm 11$  sec. After the applying of KDFR there was noticed some increase of bleeding duration to  $261 \pm 15$  sec and  $223 \pm 21$  sec on the first day after the stopping of the influence. In the subsequent periods bleeding duration gradually decreases up to the level of physiological norm. The whole normalization of the index is observed at the animals, which were processed by KDFR during 4 and 6 hours, on 28-35 day up to  $115 \pm 12$  and  $133 \pm 18$  sec correspondingly. In the process of observations at the animals, the correlation between time of fibrillation and periods of KDRF processing of the animals has not been revealed (Fig. 1).

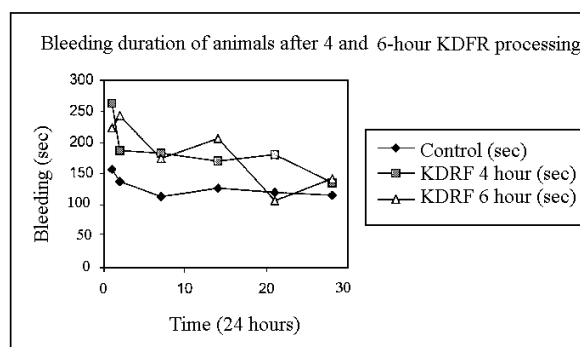


Fig.1

In the course of the experiment the strongly marked chronometric hypocoagulation was discovered due to the extension of the parameter "K" or, probably, because of the change of aggregation properties of platelets (Table 1).

For the determination of biochemical indexes serum was obtained from 5-8 ml of rats' venous blood. Beforehand

(24 hours before the slaughter), forage was taken away from the animals. The determination of biochemical indexes was provided by means of biochemical analyzer HITACHI. As a result of the experiment it was determined that at the first day after influence of KDRF there was a tendency of decrease of the glucose content (Table 2). Other indexes varied in the limit of physiological norm.

**Table 1** Parameters of thromboflexogramm after KDRF, 4 hours

Animal #	Parameters of thromboflexogramm			Fibrio gene	Fibrinal activity
	R (sec)	K (sec)	Ma (mm)		
1	72	$\infty$	10	-	-
2	102	$\infty$	18	-	-
1	90	$\infty$	10	275	75
2	180	150	52	315	90
1	180	$\infty$	5	-	100

**Table 2** KDRF influence on the glucose content in blood of the rats

Time (days) after the experiment	KDRF 4 hours (mmole/l)	Test (mmole/l)	KDRF 6 hours ( mmole/l)	Test (mmole/l)
1	3.14	6.12	6.39	7.27
10	7.59	9.35	8.90	6.69
30	6.05	6.69		

### Research of haemopoiesis system

Several criteria were considered: the dependence of biological effect on the distance, on the power flux density, on the duration of processing. Besides, KDRF influence on mice survival was considered.

At the experiment 24-28 gram weighting, pelletized fed male mice were used. The marrow was examined in the dynamic at 1, 3 and 7 day after KDRF influence. Six animals were taken on each point. After the decapitation of the mouse their thighbones were taken out and after that the absolute number of myelokaryocytes was calculated by the standard method in Goryaev chamber.

#### Dependence of the biological effect on the distance

In all experiments the maximum flux density along the geometrical axis of KDCR device was a constant. There were used four temporal modes of the influence (1, 2, 3, 4 hours) and three points of long distance between KDSR and the biological object (0.5; 1.5; and 2.5 m). At 0.5 m distance there were no differences in the number of marrow cells in comparison with the control cells. With the increase of distance between KDCR and the object from 0.5 to 1.5 m some tendency to the increase of the number of marrow cells up to the 7<sup>th</sup> day was observed. Four-hour KDRF processing caused the increase of the number of karyocytes up to  $29.99 \pm 1.25 \times 10^6$  ( $P < 0,001$ ).

Thus, any dependence of the biological effect on the exposition has not been revealed. For instance, at the 7<sup>th</sup> day after one hour of the exposition the number of karyocytes was equal to  $28.45 \pm 1.87 \times 10^6$  at the same time after 3-hour processing it came to  $27.65 \pm 0.74 \times 10^6$ . Alongside with the change of the distance to the biological object from 1.5 to 2.5 m the tendency towards the increase of the number of marrow cells has kept within the same limits  $28.27 \pm 1.32 \times 10^6$  and  $29.57 \pm 0.88 \times 10^6$ .

#### Dependence of the biological effect on the power flux density

The comparative investigation of KDRF influence on the biological object in the coverage of KDCR (along its geometric axis) and outside the coverage has demonstrated that alongside with the increase of the radiation intensity there was a tendency towards the decrease of stimulative influence of KDRF on haemopoiesis.

#### Dependence of the biological effect on the duration of processing

On processing the animals at distances up to 2.5 m from KDCR and on increase of exposition to 3-4 hours it is possible to obtain reliably significant difference in the number of marrow cells from the physiological norm to the 7<sup>th</sup> day.

## KDRF influence on the survival of mice

### **The experiments, determining the survival reaction of animals, were made by means of gamma radiation.**

30-day survival is the criterion of determination. Conditions for the experiments are the following: in the coverage of KDCR and aside the coverage, (the distance between the KDCR and the object is 2.5 m in the coverage of KDCR and 0.5m outside the coverage). Time of influence is 4 hours. Animals of both sex were used. Two groups of animals were used. The test group was put to the gamma radiation in the diapason of doses, which caused marrowy syndrome, i.e. from 7.5 to 8.5 Gr. The second group of animals after the irradiation in the same diapason of doses was repeatedly processed with KDFR. Time of the influence is 4 hours at 7.5 Gr gamma radiation on 15 mice in one bath and 8.5 Gr on 15 mice in another bath. Total gamma radiation of the animals was made by means of the source  $^{137}\text{Cs}$  with the dosage rate of 5.2 Gr/min. Gamma radiation in this dose diapason causes death of the animals during the development of the marrowy syndrome, i.e. from the 6<sup>th</sup> to the 20<sup>th</sup> day along with the aplasia of haematogenic tissue. Combination of gamma radiation and KDFR sometimes leads to the slight increase of the number of survived animals. If the animals are irradiated by gamma rays at first and then by KDFR, the death control at 7.5 Gr radiation is equal to 5.5% from the total number of the animals and at the following KDFR processing 16% of the irradiated animals die. However, 67% of the animals in the tested group have died after KDFR processing and after the coming next gamma radiation with 8.5 Gr total dose. And in the group, which was processed with KDFR, only 46% of the animals died.

### **Immunity strengthening**

For the investigation of KDFR influence the following tests were chosen: activity of natural killers and T-killers, which had been obtained by the immunization in vitro in the unidirectional mixed culture of lymphocytes and also in the reaction of blast transformation on the specific mitogen [6, 7]. All tests were made on the 7<sup>th</sup> day after a single KDFR influence. Unfortunately, data have been obtained with the applying of radioisotope preparations. Though the experiments of this kind were successful and though they have demonstrated the increase of some immune reactions' level, there is a certain doubt in the relevancy of radioisotopes application [2]. Thus the series of experiments was made. These experiments were aimed at the investigation of KDFR influence on the development of the swelling process. The aim of the experiment is the investigation of KDFR influence on the development of Ehrlich cancer and sarcoma-37, which were repeatedly inoculated to mice. At the first stage of the experiment there was a single KDFR influence on the mice repeatedly inoculated with sarcoma-37, on the 2<sup>nd</sup> day after the repeated inoculation of the swelling cells to the animals. The repeated inoculation was made intramuscularly in a right thigh, in a dose  $10^6$  of cells per a mouse. Time of KDFR influence for the first group of animals was equal to 1 hour; for the second one it

came to 2 hours; and for the third one it came to 4 hours. Each group consisted of 6 animals. The test group consisted of six mice with repeatedly inoculated sarcoma-37 and which had not been processed with KDFR. As a result, the average lifetime of tested animals was equal to 9 days. The average lifetime of animals of KDFR groups came to 48 days (for 1-hour KDFR influenced group); to 12 days (for 2-hour group); and to 31 days (for 4-hour group). Thus, the average lifetime of the experimental group came to 29 days. Besides, in the group, which has been processing with KDFR during 1 hour, **the half of mice had survived (three of six mice).**

At the second stage of the experiment the repeated (5 times during 2 hours) KDFR influence on the mice was applied. These mice have been inoculated with sarcoma-37 at seven days before the beginning of the influence. As a result, the average lifetime of the animals was equal to 27 days, and for the mice, which were processed with fivefold KDFR influence, the average lifetime was equal to 76 days. The obtained results are the evidence of inhibition of swelling development for the animals, which were processed with KDFR influence. This leads to the increase of lifetime of such animals in comparison with the test. **Thereby, at a great extent the results of the previous experiments on the strengthening of immune status after KDFR influence were confirmed.**

## **Results and discussion**

Let us make a conclusion. At the KDFR influence on animals' organism the following effects were observed: decrease of blood viscosity; strongly pronounced hypocoagulation; decrease of contents of glucose. Increase in the number of karyocytes and the extended lifetime of the animals, infected with Ehrlich cancer and sarcoma-37 were also observed.

As for human being, the researches in this area have not been carried out yet and they are still confined to the single observations. It is possible to give an example from the author's practice. In 1975 nonoriented circuit of 3kWtt power was examined. Field strength was measured. The author of the article had been working in the field for about 8 hours. And after five hours after the experiment I had felt bad. That time it was nothing known about the influence of the new radiation on human organism. The arrived ambulance has quickly diagnosed that I was close to hypoglycemic coma. On several hours after the intravenous glucose injection, my state has become normal. **Now we know that before the experiments with powerful KDFR bunches it is necessary to eat sugar.** Thus we believe that the data, which were obtained after the experiments with animals, can be applied to a human being. We can suggest that the manifestation of the symptoms of the KDFR influence on human organism depends on the power of the applied source, on the total mass of the organism and on the time of it in the coverage of the irradiation. From aforesaid it is clear that the experiment with powerful KDFR sources is far from being harmless

and it is better to make it distant after exclusion of man presence near experimental stands and devices. At the same time it is quite obvious that on applying of small capacity and fixed time of irradiation it is possible to develop methods for curing of human diseases, which are considered now as incurable (for instance of diabetes, some diseases of haematogenic system, of cancer and possibly of AIDS).

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## Effect of Magnetic Blow Wave Field on Wine Systems

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### Introduction

Authors communicate the data on influence of Magnetic Blow Wave (MBW) field on several wineproducts. It was found, that MBW did not lead to significant changes in the major components of the wineproduct (sugar, organic acids, minerals). At the same time the taste and aroma of treated wine become more pleasant; content of heavy alcohols and wine stone in the treated samples was less than in non treated ones. A mechanism of transformations was also discussed.

**Keywords:** *Magnetic Blow Wave (MBW), Wineproduct, GLC of aroma compounds and ethanol, HPLC of sugars, Atomic Absorption Spectrometry (AAS) of minerals, Heavy alcohols and aldehydes, Wine stone, Turbidity tendency, Organoleptic evaluation*

Magnetic Blow Wave (MBW) was obtained for the first time during the investigations on ball lighting generation under the laboratory conditions (Shakhparonov 1994). MBW as a physical object is interesting because of some facts, which suggest that MBW is a magnetic monopole. The MBW can also interact with the matter and transforms it in a definite way. Typical example is an elementary carbon in the form of graphite, which is transformed by such magnetic treatment into ferromagnetic substance (ibid).

The graphite, which is initially diamagnetic, transforms to paramagnetic one with general radiation dose of about  $7 \cdot 10^{19}$  neutrons/cm<sup>2</sup>. Other types of radiations could not affect this way (Svoistva 1975). So one unit of MBW can be considered as  $1 \cdot 10^5$  of neutron masses. This fact may be regarded as an indirect evidence for assuming that MBW and magnetic monopole are the same things. In the absence of excited radioactivity a slow MBW [ $v/c < 1 \cdot 10^4$ ] occurs, which does not ionize atoms (Devons, 1963). Therefore, their interaction with the matter can be observed only indirectly. No data exist on the interaction of MBW with organic substances. The experiments and results reported in the present communication may be a starting point for development of technology and to formulate the methods for vintage wine and best quality spirit production.

### Materials and Methods

Assuming that MBW and magnetic monopole are the same things, a number of conditions were selected for all experiments. The MBW source and the samples were placed in the same axis and the axis was oriented according to magnetic meridian direction. Such magnetic orientation is appropriate, as the energy of magnetic monopole theoretically increases in a magnetic field (Devons, 1963). All of samples were placed at 250 cm distance from MBW source, in hermetically closed glasses. It should be noticed that MBW could penetrate through many other barriers, for example into cast iron reservoir with wall thickness of 5 cm (Amaldi, 1970).

The quality investigations were made by using of standard equipment. HPLC, equipped with refractometric detector was used for sugars estimation. Separation of organic acids in forms of their ethyl esters and acid esters was carried out chromatographically using a column packed with polyethyleneglycol succinate and the following temperature option: initial temperature is 120°C, final temperature is 220°C, temperature growth rate: 8°/min. GLC was also employed for determination of ethanol. Minerals content

conclusion: in order to obtain complete information about any system, it should be destroyed. However, destruction of tissues of the man in order to get information about their state is a too high price to pay for the information about his health.

However, the above Van Hoven's criterion can be satisfied with the minimum influence, when the cells are not destroyed and the atoms of these cells, being primary sources of torsion spectrums to be registered, are bring into the non-equilibrium state by means of outer disturbing influence.

In order to choose the frequency of the disturbing torsion influence correctly, it is necessary to take into account the role of water in physical and biochemical organization of tissues of the human organism.

At the same time, it is necessary to take into account the resonance torsion frequencies of various human organs. Finally, it turns out that the signal of torsion disturbance should be rather sophisticated considering both these factors. The TORDI system is a ready-to-use production device. Nevertheless, it is important to understand that the model is not the limit of scientific and technical potential incorporated in it and that enhanced variants of the system will appear with the course of time.

Summing up, I would like to draw your attention once more to the fact that work on torsion technologies is not limited by the directions that were discussed here. Actually, as it was pointed out in the beginning, ongoing development includes all branches of economy, industry, agriculture and medicine, as well as all problems of everyday life. Technologies that we mentioned are the forerunner of the fact that the mankind is on the threshold of the age of torsion

technologies, which, we believe, will change our life in the 21<sup>st</sup> century more than all the scientific and technical revolutions of the 20<sup>th</sup> century.

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## The Electrical Vortex Non-Solenoidal Fields

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A mistake was found in the electrodynamics: it is detected that all electrodynamics' postulates corresponds to the experimental facts, but vortex electric fields has unclosed inductive lines.

When the magnet is moving, then the current of magnetic induction is moving together with it. From known velocity of motion  $\mathbf{v}$  and the value of magnetic induction  $\mathbf{B}$ , it is possible to calculate the intensity  $\mathbf{E}$  of appearing vortex field according to electrodynamics formula of transformation of fields  $\mathbf{E}=\mathbf{vB}$ .

If to change the  $\mathbf{E}=\mathbf{vB}$  on induction  $\mathbf{D}=\varepsilon_0\mathbf{E}$  in formula of fields' transformation, that will get  $\mathbf{D}=\varepsilon_0\mathbf{vB}$ , where

$\mathbf{D}$  is electric induction,  $\mathbf{B}$  is magnetic induction,  $\mathbf{v}$  is velocity of motion,  $\varepsilon_0$  is electric constant.

Herewith the appearing electric induction is always transverse to the direction of motion. It is possible to formulate the rule of origin for electric induction under the condition of rectilinear motion: if to dispose the right hand palm so four fingers shows the motion direction of the magnetic flow (the field), connected with moving magnet, and the vector  $\mathbf{B}$  falls into palm, then the moved aside big finger will indicate the direction of vector  $\mathbf{D}$ . The given rule is like the rule for Lorenz' force, but on the contrary (the difference is in frame). In the first case the charge moves, but the magnet rests. Here the magnet moves, but the charge, which points the direction for lines of force of electric induction, is immovable. So, there it is the rule for left hand, but here, on the contrary, it is the rule for right hand. Thereby, if the charge moves, but the magnet is immovable, then the rule of left hand uses for determination of the force. But if the magnet moves, but the charge rests, then the rule of right hand uses for determination of the force.

The origin of electric force is connected with that, the vortex electric field  $D = \varepsilon_0 Bv$  appears around moving magnet (the magnetic field does not act on immovable charges).

In common literature on electrodynamics there is no any difference between electric vortex field and solenoidal field, but these are different notions. The sign of solenoidal field is the closed lines of electric induction (the flow of vector  $D$  through the closed surface is a zero), but for the vortex field the sign is following: the work of forces can be different from zero under the condition of motion along a closed line. That is to say, the vortex fields can agitate the rotational currents.

From the electrodynamics textbook: "The work of forces of vortex electric field can be different from zero, when the electric charge is moving along a closed line."

For instance, when the magnet moves, the vortex electric field appears and this field can be solenoidal or not, depending on magnet's orientation. Let's take such example: the magnet moves evenly, rectilinearly, and it's poles are oriented transversely to direction of motion. According to the rule of origin for electric induction ( $D = \varepsilon_0 Bv$  that is the rule of right hand), the appearing vortex electric flow is not a solenoidal, since the lines of electric induction are not closed. Its begins in one conditional area of disturbance (+), accompanies the moving magnet, and it finish in another area of disturbance (-). For presentation it is enough to consider only two areas (+) and (-), represented on Fig.1. These dissimilar areas of disturbance appears because that flow of magnetic induction inside the magnet has the inverse direction, that outside the magnet.

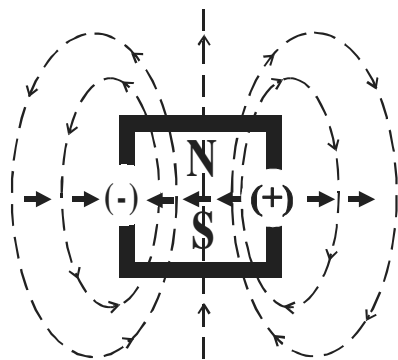


Fig.1

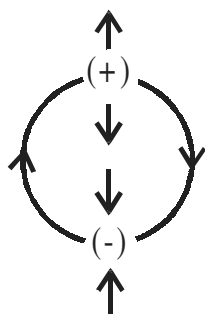


Fig.2

That moving disturbance of electric and magnetic fields presents itself as transverse electromagnetic disturbance. Also, it is necessary to notice, that under such magnet's motion, the appearing vortex electric field is not closed, but the current of electric displacement, connected with it, is closed (a currents are always closed). In given example, for clarity, it is possible to present a intensity of electric field through the Lorenz' force, if to take the frame, in which the magnet rests, and the test charge moves.

On the Fig.1 the moving magnet is conditionally represented (motion is toward to the text, magnet is moving away). N and S are poles of magnet. The direction of lines of electric induction, appearing when the magnet is moving, specified by arrows  $\rightarrow$  and  $\leftarrow$ . Part of the lines begins in positive area (+) and finishes in negative area (-), the areas are placed on the ends of magnet. **The flow of electric induction through closed surface is not a zero; that is to say, these areas of disturbance are moving electric charges.**

From the electrodynamics textbook again: "The flow of vector  $D$  through any closed surface is equal to algebraic amount of external charges, covered by this surface. In the electrodynamics these postulates has the same role, as Newton' laws in classical mechanics."

**Thereby, according to postulate, it is necessary to consider the appearing dissimilar areas of disturbance (+) and (-) to electric charges, or it is necessary to change the postulate.**

It is interesting, that a part of lines of electric induction, which placed frontal and behind magnet, starts and finish at infinity, since the distribution of magnetic induction around magnet has not determined borders.

For clarity, it is possible to make following calculation. For instance, the coil (loop or turn) with current, as a magnet, moves evenly and rectilinearly, but its magnetic poles are oriented transversely on motion direction. Under such motion the lines of electric induction are not closed, and the dissimilar areas of electric field's disturbance appears in space on the edges of this coil.

On Fig.2 the moving coil with current is conditionally represented. It moves from left to right side of the page. The arrows on the coil indicate the direction of current. The appearing dissimilar areas of disturbance of electric field are marked by signs (+) and (-). Knowing, that in medium of the coil  $B = \mu_0 I / 2r$  and according to  $D = \varepsilon_0 Bv$ , it is possible to find the electric induction, appearing in the center, between two dissimilar areas  $D = \varepsilon_0 \mu_0 I v / 2r$ , where  $I$  is current in the coil,  $r$  is radius of the coil,  $v$  is velocity of motion,  $\varepsilon_0$  is electric constant,  $\mu_0$  is magnetic constant. The electromagnetic disturbances in transverse electromagnetic waves has the similar field construction, there also dissimilar areas of disturbance of electric field exists, that is to say the lines of electric inductance are not closed. Only the currents of electric displacement and magnetic induction are closed.

Let's consider another example: magnet moves rectilinearly, but its poles are oriented longitudinally to direction of motion. According to the rule for origin of electric induction ( $D = \varepsilon_0 Bv$  is the rule of right hand), the appearing rotational electric flow is solenoidal, since in this case the inductive lines become closed lines. **Usually in books on the electrodynamics such moving magnet is considered, and the wrong conclusion is thereof done, that vortex electric field is always**

**solenoidal, herewith it is forgotten, that poles of the magnet can be oriented not only along the direction of motion, but across also.**

From the electrodynamics textbook: "The vortex electric field differs from electrostatic field that it is not related with any electric charges and its lines of intensity are closed lines."

**From theory and from experiments it follows, that under transverse motion of magnet the lines of disturbance of vortex electric field can be unclosed and, accordingly, the flow of induction through the closed surface is not a zero. Then there is a direct discrepancy to facts in modern electrodynamics.** It is strange, but for the whole history of researches in magnetism the transverse magnet's motion was not considered. It leads to revising of electrodynamics' postulates, which plays such role in electrodynamics, as the Newton's laws plays in classical mechanics. The postulates, giving invalid belief about field processes, accordingly, do not allow to make some correct calculations. Fallaciousness of these postulates was one of the reasons, on which the electrodynamics could not to consider and to calculate the discrete electromagnetic waves (photons), where the magnetic field also is the transverse field (the field construction and calculation of photons are represented on the page <http://www.comail.ru/~alemanov>). **That is to say, not only particles has the charges, but areas of disturbance of field (without particles) are the charges also,** where the flow of electric induction through the closed surface is not a zero. Thereby, the vortex electric fields can be not only as closed flows of induction, but as well as inducted electric charges, accordingly, the laws for electric charges are valid for induced electric charges also. For instance, in the law of conservation of charge: if somewhere the area of disturbance with positive sign appears, that negative area appears also.

From the electrodynamics textbook: "The vortex electric field is generated by the variable magnetic field. Its force

lines are always closed, like force lines of magnetic field."

But before this fundamental postulate, confirming, that force lines of vortex electric field are always closed, it was necessary to consider all variants of change for the magnetic field, including the variant of the transverse motion of the magnet. That is to say, the consideration of physical processes could not be unilateral. Faraday considered the longitudinal motion of magnet and discovered the electromagnetic induction, but the transverse motion of magnet that have the principle importance for understanding of field processes in electrodynamics was not considered. Thereby, the longitudinal motion of magnet brings to arising a vortex electric field with closed force lines, but transverse motion of magnet brings to arising a vortex electric field, where the lines of forces are not closed. In this case it lead to induced electric charges. It is necessary to notice, that this is first mistake, detected in electrodynamics postulates for all time of existence of electrodynamics.

From the electrodynamics textbooks: "...Gauss' theorem is valid not only for electrostatics, but also for electrodynamics, which using a variable in time electromagnetic fields. We are not sure if this hypothesis is valid or it is not valid... Only the experiment can give the answer on this question. The whole collection of experimental facts speaks in favor of this hypothesis." But, unfortunately, the experiment with transverse motion of magnet was not considered seriously in this textbook.

*(Editor's note: Well-known Searl's experiments and Godin & Roshchin's experiments are based on such transverse motion of magnets (rollers). In Alemanov's article it was demonstrated that in this case the experiment should lead to induced electric charges. Really it was detected in experiments. Hence this missed aspect of electrodynamics is very important for development of the new energy technologies.)*

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## Gravito-Inert Mass

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Nature of mass is one of the important problems of modern physics. It is accepted to consider that the mass of elementary particle is determined by fields, which are connected with it (electromagnetic, nuclear and others). However, we didn't create any quantitative theory of mass. There is no theory to explain why masses of elementary particles form a discrete spectrum of values and to allow determining this spectrum.

Mass ( $m$ ) is a physical value, one of characteristics of matter, which defines its inert and gravitational properties. Accordingly, we distinguish inert mass ( $m_i$ ) and gravitational mass ( $m_g$ ).

Inert mass ( $m_i$ ) characterizes dynamical properties of a body, its property to accelerate under the action of the force ( $\vec{F}_i$ ) and according to the second Newton's law is considered to be constant coefficient of proportionality for the given body between  $\vec{F}$  and acceleration  $\vec{a}$ .

$$\vec{F}_i = m_i \vec{a} \quad (1)$$

Gravitational mass ( $m_g$ ) is a source of gravity field. Every body creates its gravity field, which is



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***The Principle of Self-Organization, which can be formulated as follows: any material object represents an open self-organizing system whose internal structures are formed with the participation of the whole universe. Apparently, the Principle of Self-Organization, incorporated in nature as one of the integral properties of matter, is nothing more nor less than a spirit (or absolute idea, or creator) which operates the world and creates all its variety.***

## Physical Mechanism of Nuclear Reactions at Low Energies

V.P. Oleinik\* and Yu.D. Arepjev

*Tell me what the electron is,  
and I shall explain to you everything else.*

W. Thomson

### Abstract

The physical mechanism of nuclear reactions at low energies caused by spatial extension of electron is considered. Nuclear reactions of this type represent intra-electronic processes, more precisely, the processes occurring inside the area of basic localization of electron. Distinctive characteristics of these processes are defined by interaction of the own field produced by electrically charged matter of electron with free nuclei. Heavy nucleus, appearing inside the area of basic localization of electron, is inevitably deformed because of interaction of protons with the adjoining layers of electronic cloud, which may cause nuclear fission. If two or more light nuclei occur "inside" electron, an attractive force will appear between the nuclei that may result in the fusion of nuclei. The intra-electronic mechanism of nuclear reactions is of a universal character. For its realization it is necessary to have merely a sufficiently intensive stream of free electrons, i.e. heavy electric current, and as long as sufficiently a great number of free nuclei. This mechanism may operate only at small

energies of translational motion of the centers of mass of nuclei and electron. Because of the existence of simple mechanism of nuclear reactions at low energies, nuclear reactor turns out to be an atomic delayed-action bomb, which may blow up by virtue of casual reasons, as it has taken place, apparently, in Chernobyl. **The use of cold nuclear reactions for production of energy will provide mankind with cheap, practically inexhaustible, and non-polluting energy sources.**

### Introduction

Nuclear reactions at low energies, occurring in physical and biological systems, and, in particular, the cold fusion (CF) of nuclei, attract ever increasing attention (see review articles [1,2]). This is explained by the fact that research on CF (in what follows, by cold fusion we shall understand any nuclear reactions at low energies) opens up the way to the solution of the problem which was set more than 50 years ago in the field of controlled thermonuclear reactions (CTR) and which has not been solved that is the problem to provide mankind with cheap fuel. An important point is that CF allows to create not only cheap, but also non-polluting energy sources, as nuclear reactions at low energies are not accompanied by radiations dangerous to health ( $\gamma$ -radiations, streams of fast neutrons and other particles). Note that the energetic problem facing mankind is presently of special interest in connection with the fact that, according to expert evaluations, the oil-and-gas resources in the world will suffice only for some decades. For this reason the study of CF is among the most important problems of physics.

It is necessary to note that, relying on the standard theory of nuclear reactions describing nuclear processes in vacuum, experts in the field of nuclear physics, engaged in CTR, reject the very possibility of existence of nuclear fusion at low energies. Two basic objections are raised against CF:

1. at low energies the penetrability of Coulomb barrier around nuclei is so small that the probability of nuclear fusion is practically equal to zero;
2. distinction between the atomic and nuclear energy scales is so great that the energy, which might be evolved as a result of nuclear fusion, could not be transferred directly to atomic lattice; therefore the energy above should be emitted in the form of streams of  $\gamma$ -quanta, fast neutrons and other particles. However, such streams of sufficient intensity have not been registered.

The answer to the first objection against existence of CF is that at the heart of CF are nuclear processes occurring in environment, and the basic role is played here, apparently, by collective effects caused by interaction of nuclei with particles of environment in which the nuclear reaction takes place. The laws governing the behavior of interacting nuclei in vacuum are inapplicable to the description of CF of nuclei [3]. Nuclear reactions occurring at low energies submit to completely different laws, which can be established only provided that collective effects mentioned above are taken into account. For this reason the standard theory of nuclear reactions in vacuum can by no means refute the existence of CF.

As to the impossibility of transferring the energy between levels of various scales, we can give an example of the phenomenon of sonoluminescence (luminescence of a liquid when a sound wave causing cavitation passes through it) [4], in which the energy transfer from an acoustic wave to electromagnetic field occurs with appreciable probability in spite of the fact that the distinction between energies of acoustic phonons and quanta of light reaches 11 orders.

As early as 10 years ago J. Schwinger, the Nobel winner and the known expert in the field of the theory of elementary particles and quantum electrodynamics, asserted that it is impossible to deny the reality of CF phenomenon [3,4]. Since then the CF phenomenon for nuclei was repeated hundreds times in laboratories all over the world, tens of patents on the ways of energy generation on the basis of CF were registered and enormous number of experimental works were published, which not only confirmed the existence of effect, but also contained its detailed analysis.

The most convincing evidence for the existence of nuclear reactions at low energies seems to give the mass-spectrometric research of reaction products [5] as well as research on biological systems [6]. Detailed study of electric explosion of foil made of especially pure materials in water, described in [5], suggests that at electric discharges transformation of chemical elements

occurs. Study of optical spectrum of plasma arising at discharge and of the mass-spectrometric analysis of sediments, which remained after the discharge, shows that in plasma there is an appearance of a significant number of chemical elements which were not presented in the initial material of explosive foil and electrodes and also that the isotope structure of the foil material changes appreciably. The change of experimental conditions, for example, of energy contribution in foil, its mass and dimensions results only in redistribution of intensity of plasma spectral lines, i.e. in the change of statistical weight of chemical elements in plasma, but the composition of chemical elements remains unchanged and it essentially depends on the material of foil. As it is seen from the received results, nuclear reactions, which take place at electric discharge, are not accompanied by the occurrence of a neutrons stream and  $\gamma$ -radiation and proceed at low energies of atomic nuclei.

**The research mentioned above** as well as many others, carried out by different researchers in different laboratories, **allow to draw a conclusion that existence of nuclear reactions at low energies is reliably established.**

The development of research on CF is hampered by the absence of theory of the phenomenon. As noted by Schwinger [3,4], the situation in CF is closely parallel to that one in high-temperature superconductivity: reality of the last, as a result of careful experimental research, is completely established, though theory of the phenomenon is absent till now.

In [5], to account for the transformation of chemical elements, the hypothesis is put forward that at the electric explosion of foil in the plasma channel magnetic monopoles are formed which may overcome the Coulomb barrier even at insignificant kinetic energy due to the great magnitude of their magnetic charge. The monopole, appearing not far from a nucleus, causes its polarization: those nucleons of the nucleus, which are situated more close to the monopole, experience stronger influence of the last, than the nucleons situated on the opposite side of the nucleus. As a result, a deformation of the nucleus arises (the nucleus is lengthened), which may result in nuclear fission.

Obvious drawback of this mechanism of nuclear reactions is that magnetic monopoles have yet to be found out in nature.

Numerous attempts to construct a consistent theory of CF (see reviews [1,2]) have not been crowned with success. As it was noted above, for the CF to be described, the account of the collective effects may be important caused by interaction of nuclei with environment, in which nuclear reaction takes place. But does it suffice to take into account these effects in order that the theory of the phenomenon is constructed? The analysis of the experiments on transformation of chemical elements at low energies and on the CF of nuclei suggests that the discussed phenomenon does

not fall within the domains of exotic ones: it seems to occur in nature constantly, at every step, in both physical and biological systems. Therefore, it is natural to expect that nuclear reactions at low energies should have a simple physical explanation.

However such explanation, which is not beyond the scope of existing representations, is yet to be found. Does not it mean that we are facing here the situation similar to that which has arisen in physics at the end of the 19th century and which has been figuratively described in the words: on the light sky of physics there are only two small dark clouds – the radiation of absolutely black body and the Michelson experiments? Let us remind that in order for these clouds to be removed, it has taken the revision of physical notions about electromagnetic field as well as about space and time.

As is noted in [8], there is a simple physical mechanism of nuclear transformations at low energies which existence follows from the quantum theory of electron as an open self-organizing system [9]. If two or the greater number of light nuclei appear inside free electron, more precisely, inside the area of basic localization of the particle, because of interaction of nuclei with electrically charged matter of electronic cloud, a force of attraction appears between the nuclei which may result in fusion of nucleus. This means that **cold nuclear reaction represents an intra-electronic process** which character is defined by physical properties of the own field produced by electrically charged matter of electron. The purpose of this paper is more detailed consideration of the mechanism above stemming from the spatial extension of electron.

In section 2 physical ideas are formulated and basic results are schematically presented of quantum theory of electron as an open self-organizing system. The theory outlined is necessary to elucidate the origin of the mechanism resulting in the occurrence of nuclear reactions of fusion and fission at low energies. The essence of the developed approach consists in that **the own field created by electron is treated as a congenital, integral physical property of electron, intrinsically inherent in the particle by the very nature of things and for this reason the own field and self-action are included in the definition of the particle** at the initial stage of formulating the theory. As is seen from the received results, electron represents a quantum (elementary excitation) of the field of electrically charged matter. It is a soliton, which physical and geometrical properties are described by the non-linear and non-local dynamical equation similar to the known Dirac equation.

In section 3 the application of quantum model of self-organizing electron to nuclear reactions at low energies is considered. It is noted that because of the presence of simple physical mechanism of nuclear reactions at low energies, which is of a universal character, nuclear reactors represent, in effect, nuclear delayed-action bombs, which from time to time may blow up by virtue

of the casual reasons. Hence, though nuclear stations may provide mankind with energy, however atomic engineering is a very dangerous way of energy production. The only acceptable way of solving the energetic problem consists in the use of nuclear reactions at low energies.

### Quantum model of electron as an open self-organizing system

The basis for the standard formulation of quantum electrodynamics (QED) is the hypothesis that electron is a structureless point particle which does not experience self-action. This assumption results in serious difficulties – the divergences of mass and charge of electron and the impossibility to explain stability of the particle (see, for example, [10-12]).

The difficulties mentioned above are very serious. According to Dirac, **the difficulties of QED “in view of their fundamental character can be eliminated only by radical change of the foundations of the theory, probably, radical to the same extent as transition from the Bohr orbits theory to modern quantum mechanics”** ([13], p. 403). “Correct conclusion”, Dirac emphasizes, “is that the basic equations are incorrect. They should be changed in such a way that divergences do not appear at all”.

The main reason of occurrence of difficulties is the assumption that electron is a point-like particle. Therefore, abandonment of this hypothesis is inevitable. As an analysis of the problem shows, the key to constructing a consistent quantum theory of electromagnetism lies in taking account of the Coulomb self-action of electron, i.e. the back action of the own field created by charged particle in environmental space upon the same particle. In the special case that the particle is at rest in an inertial reference frame, own field of the particle turns into static Coulomb field.

E.Schrödinger who suggested the historically first physical interpretation of quantum mechanics put one of the boldest ideas concerning the problem of electron forward. According to Schrödinger's hypothesis, the quantity  $e|\Psi(\mathbf{r})|^2$  ( $e$  and  $\Psi(\mathbf{r})$  are charge and wave function of electron, respectively) is the density of spatial distribution of electron's charge and, consequently, **the linear sizes of electron are the same as those of atom** [14,15]. However, they did not succeed in substantiating the interpretation and, for this reason, it was rejected by the majority of physicists [16].

An important step to the correct understanding of the physical nature of electron was made by A. Barut and by his collaborators [16-18] who formulated and developed quantum theory of electromagnetic processes on the basis of self-energy picture (the Self-Field QED). Using expression for the total own energy of electron, they managed to calculate the Lamb shift and other radiative corrections and to show that radiative phenomena may be described in terms of the

action function, without using the second quantization method. As is pointed out by Barut [17], “the correct quantum equation of motion for radiating electron is not the Dirac or the Schrödinger equation for bare electron, but an equation containing an additional non-linear self-energy term”.

New lines of approach to the problem of electron are offered in [9, 19-24]. The formulation of electrodynamics is considered which represents a synthesis of standard quantum electrodynamics and ideas of the theory of self-organization [25]. The physical mechanism of self-organization of electron consists in self-action. Taking into account the self-action means that electron is treated as a feedback system.

Let us outline schematically the results of the formulation of quantum electrodynamics in which electron is an open self-organizing system.

*Editor's note: The authors develop mathematics by using Lagrangian functions, 7 equations. You can contact the authors for more information about.*

Thus, the negative result is received: we have tried to take into account self-action of electron in a natural way by supplementing the Lagrangian function with the self-energy term, but we came to an equation that has no reasonable physical solutions at all. This result seems to mean that the standard theoretical scheme reaches here the limits of its applicability and so, remaining in its framework, it is impossible to solve the problem of electron and elucidate the physical nature of electromagnetic interaction.

Essentially new point, which is introduced in [9] into quantum mechanics consists **in the replacement of the model of isolated system described by harmonic oscillator with the model of open system**. Let us advance the arguments indicating the inevitability of using the model of open system as a basis of the description of interaction between microparticles [26].

Note, first of all, that quantum particle theory based on the use of the models of isolated system is, strictly speaking, physically meaningless. Really, any observation conducted on a system represents a process of interaction of the system with the means of observation. But in case of microparticles (quantum particles) this interaction is not weak and consequently it is inadmissible to neglect it, i.e. microparticles should be necessarily considered as essentially non-isolated systems.

A starting point of the standard formulation of quantum mechanics is the physical idea that interaction between physical fields can be reduced to collision of the particles corresponding to these fields, the particles before and after collision being considered as free ones. According to these representations, quantum mechanics is based on the notions of “bare”, non-interacting particles, with the interaction between them being considered as an additional factor which can only

insignificantly alter the physical properties of non-interacting particles. However, such an approach to interaction between physical fields is obviously of an idealized character because particles constantly interact “with vacuum as with some kind of physical medium in which the particles move” [27]. Interaction of particles with vacuum fluctuations is not small and it cannot be removed.

It is well also to bear in mind that the necessary intermediary at studying micro-objects are the means of observations (the devices) with the classical field corresponding to them which should be taken into account in consistent quantum theory [28]. Inclusion in theoretical scheme of arbitrarily weak classical external field results in occurrence of non-zero width  $\Gamma$  of energy levels of “dressed” particles. The basic impossibility to isolate a real particle from vacuum fluctuations of the field and from the classical sources connected to the means of observation is indicative, thus, of necessity to take into account the non-zero width of energy levels of real particles [26].

The use of the harmonic oscillator model, when describing the interaction of electromagnetic radiation with substance, seems to be the main source of serious difficulties of the standard formulation of quantum theory, as such an approach means apparent neglect of those physical processes which, proceeding constantly, are responsible for inseparable coupling of real physical system to surrounding medium. Introducing artificial notion about switching on and switching out of interaction of oscillator with radiation field, we are able to calculate within the framework of existing theory the width of energy levels of oscillator, but we cannot assert with certainty that such an approach results in correct description of interaction.

From the reasoning given above it is seen that they are the models with energy levels of non-zero width that should form the basis for the description of interaction of radiation with substance. It is necessary to formulate such a quantum theory, which would take into account the energy levels of non-zero width  $\Gamma$ . The case in point is that one should introduce an infinitesimal damping  $\Gamma$  into the initial set of equations describing interaction of charged particles with electromagnetic field. Such an approach means the violation in infinitesimal of homogeneity of physical system relative to translations in time. Necessity of violating the homogeneity of time follows from that fact that in the usual approach (with  $\Gamma = 0$ ) the states of the system of interacting fields have degeneracy of infinitely large multiplicity in relation to time translations. According to the fundamental Bogoliubov's concept of quasi-averages [29], when describing the behavior of degenerate systems, one should include into Hamiltonian an infinitesimal term removing degeneracy. In the theory presented here degeneracy of states of quantized fields relative translations in time is removed by introducing the infinitesimal damping  $\Gamma$  into Lagrangian. Thereby the degeneracy under study is removed already in the initial, zero-order approximation, which is of

fundamental importance for the approach based on perturbation theory.

Formulation of the physical idea that quantum friction arises at the very elementary level - at the level of one particle is given in monograph [26]. Impossibility to isolate real particle from the surrounding world is that property which should be taken into account already in the one-particle theory (for each kind of particles), even before switching on the interaction with other particles. Model of the particle as an open system ( $\Gamma \neq 0$ ) is attractive owing to the fact that from the very beginning the degeneracy of states relative to time translations is absent in it, the degeneracy, which is removed in standard approach by taking into account the interaction of particle with vacuum field fluctuations and classical fields. The basis for the developed formulation is the fundamental concept of quasi-averages supplemented with the requirement that the equations of motion of the particle with  $\Gamma \neq 0$  follow from the action principle. It should be emphasized that the non-zero damping  $\Gamma$  is introduced into electrodynamics with the aim to establish the structure of the Lagrangian function, which takes into account the property of openness of physical system. After establishing the structure, the limiting transition  $\Gamma \rightarrow 0$  is fulfilled.

**In our opinion, the development of quantum theory will be inevitably connected with the use of models of open system; as such models reflect more completely the physical essence of interrelations in the real world.** It is necessary, thus, to define more exactly the concept of openness of physical system, which, on the one hand, would describe real system accurately enough and, on the other, would be simple enough to describe the particular physical processes.

As open system has the richer physical contents in comparison with isolated system, some essentially new mathematical ideas are needed for its description. First of all, it is necessary to increase the number of independent dynamical variables describing the particle as open system. In papers [9,19-24], as a basis for the description of self-acting electron, the simplest model of open system is used which can be described by the Morse-Feshbach-Bateman Lagrangian function [30,31] and which was successfully used for the description of dispersive medium (the review of articles, in which applications of the model of open system to electrodynamics of dispersive medium are considered, is given in monograph [26]). In this model the number of dynamical variables is doubled as compared with the isolated system, namely, to each dynamical variable of "bare" particle,  $\Psi$ , there correspond two dynamical variables, which are denoted by  $\Psi$  and  $\tilde{\Psi}$ . These quantities are considered as components of the wave function describing the quantum state of self-acting particle. One of them, say,  $\Psi$ , corresponds in a sense to the particle alone (to the "bare" particle) and the

other,  $\tilde{\Psi}$ , to the surrounding medium, in which the particle moves.

*Editor's note: You can contact the authors directly for more information (8-16 equations).*

Equation (16) coincides in its appearance with the usual Dirac equation for charged particle in an external field described by 4-potential. However, in reality, it differs essentially from Dirac's equation. The distinction consists in that **equation (16) is non-linear and non-local**, with the non-locality being of both spatial and time character. Potential ( $A_{||}$ ) and vortex ( $A_{\perp}$ ) components of the 4-potential, entering equation (16), differ from each other by their physical nature: the former describes the Coulomb field and is expressed quadratically in terms of the wave function components of electron, and the latter describes transverse electromagnetic waves and is expressed in terms of vortex electromagnetic field. As a detailed analysis shows, solutions to the basic dynamical equation describe the clots of self-acting electrically charged matter, localized in space, i.e. the particle is a soliton.

The internal energy spectrum of electron is discrete with an indefinitely large number of levels, and to each value of internal energy  $E_k$  ( $k$  is the set of quantum numbers) there correspond certain linear dimensions and geometrical form of the region of localization of electron's charge. Dimensions and the number of extreme of wave function increase with increasing the value of energy  $E_k$ . The distribution of electric charge of atomic electron in the ground state consists of the range of basic localization with the linear dimensions of the order of Bohr radius  $a_0$  ( $a_0 \sim 10^{-10}m$ ) and of the tail stretching up to infinity. It is essential that because of non-linearity of the dynamical equation of electron, wave function does not obey the superposition principle. By virtue of this, electron acquires the properties of absolutely rigid body: the perturbation acting on electron at an instant of time in the range of basic localization becomes known at the next instant  $t + 0$  at any distance from the particle.

In Fig. 1 the results of calculation are represented schematically, carried out on the basis of equation (13), of the distribution of electric charge in atomic and free electrons in the ground (a) and first excited (b) states.

According to [9,19], the atom represents a system of nuclear and electronic solitons interacting with each other, the internal energy spectrum of the hydrogen atom, due to electromagnetic interaction, being of a zoned character. The occurrence of zoned structure of energy spectrum of hydrogen atom is explained as follows. Free nucleus, because of existence of Coulomb self-action, has a discrete internal energy spectrum. As the interaction of nucleus with electron is small in comparison with the energy of Coulomb self-action of the nucleus, it can be taken into account by perturbation theory. From here it follows at once that each energy

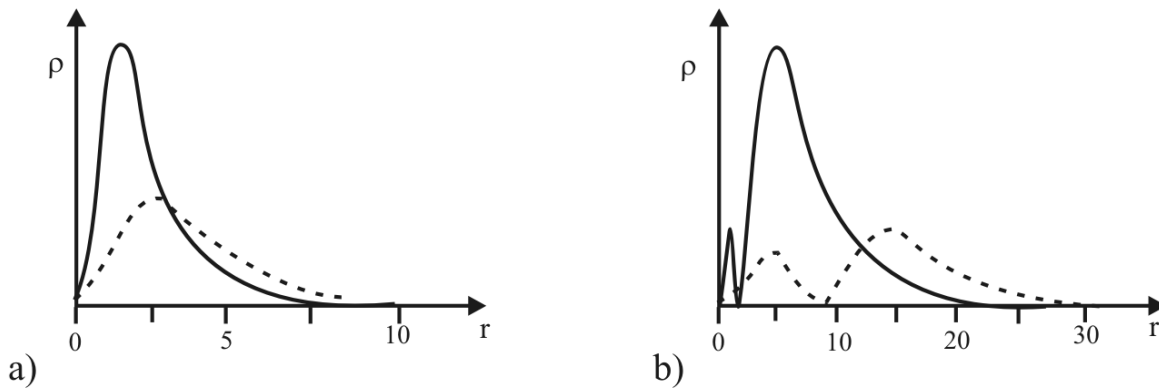


Fig. 1. Density of electric charge ( $\rho$ ) of electron in the ground state (a) and in the first excited state (b): the continuous lines correspond to electron in the hydrogen atom, and the dotted ones to free electron,  $r$  is the distance from the center of mass of electron measured in Bohr radii.

level of free nucleus is split in a zone. There are indefinitely many zones (Balmer's replicas) and in each of them there are indefinitely many energy levels. The lowest zone coincides with the usual Balmer spectrum.

### Physical mechanism of nuclear reactions at low energies

The quantum theory presented above schematically of electron as an open self-organizing system is indicative of the existence of the following mechanism of nuclear reactions at low energies [8].

If there occur in the region of basic localization of free electron, which linear sizes in the ground state of the particle are several times as large as those for hydrogen atom (see Fig. 1), two or the greater number of nuclei, each of them attracts on itself the adjoining areas of electronic cloud, resulting in compression of the electronic cloud as a whole. As a result, there appears automatically an attraction of the nuclei, which proved to be "inside" electron, on each other (see Fig. 2).

Calculation shows that the Coulomb barrier around nuclei is deformed, its height decreases and the probability of penetration through the barrier

accordingly increases due to tunnel transition. Under certain conditions this process may result in fusion of nuclei. Obviously, the process in question can occur only at small energies of translational motion of the centers of mass of electron and nuclei: nuclei should be "inside" electron long enough for them to have time to come nearer to each other as a result of electron-nuclear interaction. This mechanism of nuclear fusion is of a universal character. In order for it to be realized, it is necessary to have only a stream of free electrons intensive enough, i.e. heavy electric current, and as long as sufficiently great number of free nuclei.

If heavy nuclei appear "inside" free electron, owing to their interaction with the electronic cloud there occurs polarization of nuclei. Because the own field of electron interacts with protons more strongly than with neutrons, nuclei are deformed (become extended), and this process may result in the decomposition of nuclei to fragments (in nuclear fission).

As is noted in [7], the official version of the reasons for Chernobyl accident contains serious contradictions, a number of facts concerning the accident has no convincing explanations, and this circumstance forces to search for the true reasons for the happening, since

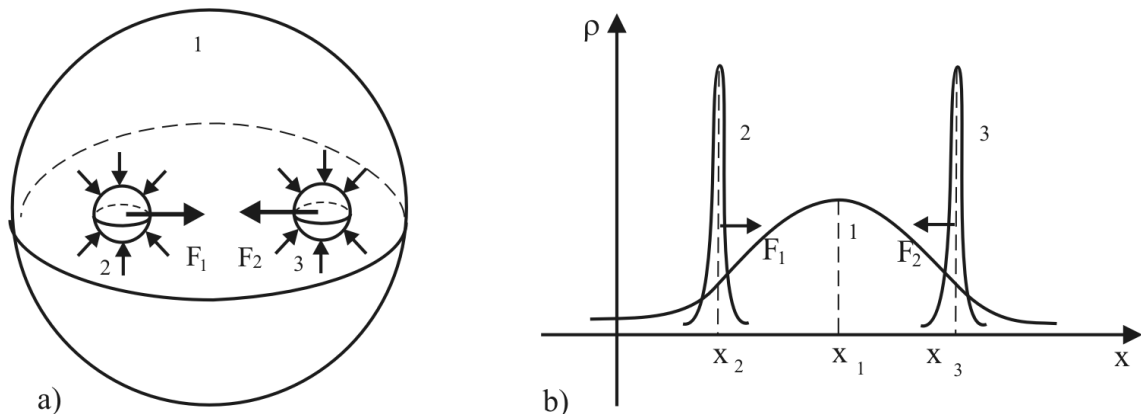


Fig. 2.

The schematic image of interaction of nuclei with electronic cloud: (a) 1 is the region of basic localization of electron, 2 and 3 are nuclei,  $F_1$  and  $F_2$  are the attractive forces between nuclei, which appear at the expense of electronic cloud compression induced by Coulomb forces; (b)  $\rho$  is the charge density, 1 is electronic soliton, 2 and 3 are nuclear solitons,  $x_n$  ( $n=1, 2, 3$ ) are coordinates of the centers of mass of particles.

“not having understood the mechanism of the one tragedy, we sooner or later shall become witnesses of the other”. The authors hypothesize that the reason of the accident was penetration into the nuclear reactor of magnetic monopoles, which have caused the decay of nuclei  $^{238}\text{U}$ , and this has resulted in production of delayed neutrons, growth of power output of the reactor and explosion. As an argument in favor of the assumption, the fact is presented that nucleus  $^{238}\text{U}$  are disintegrated under the action of “strange” radiation appearing at explosion of foil.

In the opinion of the authors of [5,7], “strange” radiation is created by those magnetic monopoles, which form bound states with nuclei of atoms. These compound particles give the abnormally wide tracks similar to those of a creeping caterpillar, and also the tracks of complicated shape reminiscent of spirals and gratings. Character of tracks changes when imposing magnetic field, which, as the authors believe, is an argument in favor of the assumption above. There are also some special tracks very similar to scratches and ink spots. “Strange” radiation is of spherical form, it resembles a ball lightning, and its duration is more than ten times as great as that of the current pulse arising at electric discharge. With the course of time the luminous sphere (the ball-like plasma formation) is dividing into many small “balls”.

It is our opinion that “strange” radiation is caused by free electrons in excited state arising in the area of electric discharge. According to [9, 19], linear sizes of the region of basic localization of such electrons can make many tens of sizes of atom. The heavy nucleus, for example, the nucleus  $^{238}\text{U}$ , appearing inside the electronic cloud, is inevitably deformed because of interaction of protons with adjoining layers in the distribution of electric charge of electron, and this deformation can cause nuclear fission. If two or the greater number of light nuclei appears “inside” electron, then attractive forces arise between nuclei, which may result in fusion reaction. When electric discharge is strong enough, the areas of basic localization of some electrons can overlap, and if a nucleus lands in the area of overlap, because of Coulomb attraction of nucleus on the adjoining layers of electronic clouds, a bound state may be formed, of two electrons and the nucleus, characterized by the relative stability and significant spatial extension.

Obviously, if the concentration of free electrons is great enough, there may be formed some relatively stable bunch of plasma consisting of great number of free electrons and nuclei, which in virtue of chaotic movement of nuclei and because of the absence of preferred directions should have approximately spherical form. Let us note that atomic electrons, belonging to additional energy zones of atom (Balmer's replicas associated with nuclear self-action, see Section 2) can contribute to “strange” radiation.

As is seen from above, to account for the reasons for Chernobyl accident, there is no need to involve

magnetic monopoles. The scenario of development of events during the accident, described in [7], seems to be quite plausible if only to understand by initiators of nuclear fission not hypothetical monopoles but free electrons, which powerful pulse might arise as a result of electric discharge in the region of turbo-generators.

The existence of simple physical mechanism of nuclear reactions at low energies, indicated in this paper, implies that nuclear reactors are, in effect, nuclear delayed-action bombs, which will blow up from time to time. Explosion of nuclear reactor may take place because of casual short circuit at an electric subcircuit, owing to which there appears an intensive stream of free electrons. This stream, having got for any reasons in nuclear reactor, may initiate explosion of the reactor. It follows from here that though nuclear stations may provide mankind with cheap energy, atomic energetics represents a very dangerous way of producing energy (as well as the energetics using controlled thermonuclear fusion). The only acceptable way of resolving the energetic problem consists in the use of nuclear reactions at low energies.

According to the results obtained, nuclear reactions at low temperatures occur “inside” electron under the action of own field of particle. Hence, to elucidate physical mechanism of CF, it is necessary to study in detail intra-electronic processes and physical properties of own fields of particles. Note that the own field, by its physical properties, essentially differs from the field of electromagnetic waves: this is the field of standing waves of matter, it is of purely classical character and may not be reduced to the set of photons. The own field of charged particle plays in nature a special role, consisting in that it transforms environmental space into the physical environment (physical vacuum) with the properties of absolutely rigid body [32].

As it was repeatedly noted in the literature [1,2], experiments on CF are badly reproduced, and this fact gives rise to doubt the very existence of the phenomenon. Bad reproducibility of results seems to be explained by the fact that CF depends upon great number of parameters: upon electric current density, concentration of free nucleus, concentration of impurities and dislocations in samples, sizes of samples etc. In order to obtain reproducibility of results, it is necessary that all these parameters, describing the environment in which nuclear reactions occur, be the same in various experiments, but to achieve this as a difficult task.

In conclusion we shall dwell upon the problem of linear dimensions of electron, which is of special interest in connection with the mechanism of nuclear reactions indicated here. The inference that the dimensions of electron in the ground state of atom are of the order of Bohr radius, i.e. of the order of atomic dimensions, following from dimension considerations [9,19] and confirmed by quantum model of electron, seems completely unexpected. At first sight, it is in conflict with both the theory of quarks and experimental data



on scattering of electrons. According to quark models, the radius of electron corresponding to its quark structure makes up the quantity of the order of  $10^{-22}$  m [33]. It is necessary to emphasize, however, that the above-mentioned magnitude of linear dimensions of electron refers to the internal structure induced by Coulomb field. The last is long-distance and consequently the linear dimensions of internal structures produced by it (i.e. spatial inhomogeneities in the distribution of electric charge in various quantum states) should considerably exceed the dimensions of quark structures connected with electron. There seems to exist a hierarchy of internal structures of particle produced by Coulomb forces, nuclear forces, inter-quark interactions etc. characterized by the smaller and smaller linear sizes.

As to the experiments on scattering of high energy electrons, according to which the internal structure of electron is not manifested up to distances of the order of  $10^{-16} \div 10^{-17}$  m, two arguments, at least, can be adduced in favor of that there is no contradiction here with the experiment. Firstly, in experiments on scattering, investigators were trying to register the details of internal structure of electron within intervals much smaller than Bohr radius, which is why it is not surprising that results of experiments proved to be negative: at high energies electrons behave like point particles, their internal structure has no time to be manifested. Secondly, the results of experiments were analyzed from the point of view of standard representations about electron, which refer to a point particle, but are obviously inapplicable to real, self-acting electron. According to the predictions of quantum theory of electron as an open self-organizing system, real electron is a special object - soliton, i.e. such a cloud of electrically charged substance which, when interacting with other particles, tends to keep its sizes and geometrical form.

At present there is as yet no scattering theory of this kind of particles and for this reason it is impossible to predict with certainty how can the internal structure of electron be manifested in experiments on scattering.

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# The Evolution of Lifter Technology

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## INTRODUCTION

Readers of the electric-spacecraft journal might know a little about the Lifter technology popularized recently by Jean-Louis Naudin, but they probably don't know the whole story. In the short amount of time that has transpired since the publication of that article, this technology has both literally and figuratively taken off – going from a “proof-of-concept” prototype by Naudin to an international group of researchers investigating how to give the lifter higher-performance and greater efficiency. With the first commercial products now on the horizon, if you haven't taken the time to read up on lifter technology, this is the perfect time to do so. . .

To give you a complete up-to-date overview of where this technology is, where it is going, and what I think it is capable of, let me start with the basics – an overview of how I became involved with Electrogravity research and what eventually led me to become involved with lifter technology.

## MY BACKGROUND

I started college at 16 years old, back in 1992 – at the same time, I purchased a kit containing “hoverboard plans” from Hovertech, Inc. The moment that I received that \$20 white-manilla envelope in October 1992 was the moment that I became involved with what has now been nearly 10 years of electrogravity research.

I worked with Bill Butler – the president and chief-scientist of Hovertech – on a variety of different antigravity, Electrogravity, and levitation ideas from approximately 1992 through 1996. While putting in my college time, I was also taking distinct advantage of the enormous college library at Western Washington University to read up on everything that might possibly relate to Electrogravity. I read books on standard electronics and physics theory alongside with books by the masters of this science, such as T.T. Brown and Nikola Tesla.

Bill and I played with several different ideas – many of them only peripherally related to Electrogravity. For instance, I published a manuscript initially in 1996 describing Tesla's theory on how to reliably produce Ball-Lightning using a standard Tesla coil – the information courtesy of WWU's excellent library. Bill also assisted me with obtaining video footage of a Searl-effect conference that he attended in Denver in the early 90's – this footage was an excellent overview of Searl's design and construction concepts for what he believes is the next major technological step in aviation and space travel.

Bill and I eventually found different paths, and in some ways drifted apart. Bill moved into Geomagnetic levitation research and started intense investigation on the patents of How Wachspress and the magnetic dipole levitator. I went to more traditional technologies – eventually becoming a UNIX system administrator for AT&T Wireless.

I hadn't heard from Bill Butler in about 6 months when he sent me a short email containing the words “hey, check this out” – and a link to Jean-Louis Naudin's “Lifter Experiments” home-page. I visited the site, watched all of the video clips, and then watched them again. This was the technology that I had been waiting for!

## LIFTER TECHNOLOGY

I can say without a doubt that the lifter technology is completely revolutionary, but you might not realize how profoundly revolutionary it is until you've stopped to think about it for a bit. What is it about the lifter that makes it so unique, especially when so many inventions claim to produce more and better electromagnetic thrust? The answer is simple – the lifter works repeatedly.

Jean-Louis Naudin started a figurative bonfire when he decided to replicate a “proof-of-concept” experiment by a small Huntsville, AL aerospace contracting firm. The lifter initially came into being in the mind of Jeff Cameron – the chief scientist of Transdimensional Technologies – in the 1970's from experiments conducted with high-power military and research-grade lasers. A device in the lasers called a “pre-ionizer” was used to apply a high-voltage to the lasing-medium to facilitate better performance. Repeated operation of the pre-ionizer had a common side-effect of horribly twisting the wire and foil combination out of shape, which required a decent amount of work to repair.

Jeff Cameron realized that the torsional effect on the pre-ionizer was a side-effect of some unknown force acting on the pre-ionizer apparatus, and he began a long-term investigation into what was causing the apparatus to deform. His eventual results indicated that a force in the foil collector in the pre-ionizer was causing a net-thrust in the entire pre-ionizer apparatus that was making it twist and move on its mounts within the laser – the lifter came to him later as a three-dimensional device to demonstrate this force.

Naudin's genius became readily apparent not through a giant breakthrough in technology, but rather in a more subtle fashion – he replicated the lifter experiments of Transdimensional Technologies and published videos, articles, and complete construction plans on his website to allow others to do the same. In a manner similar to the open-source software movement, Naudin had taken an incredible scientific find that might have otherwise been overlooked and done and incredibly charitable and intelligent thing – he gave it away for others to play with. By following Naudin's instructions, inventors all over the globe began to slowly replicate the

Transdimensional Technologies experiments and thereby validate the proof of concept that Jeff Cameron had created to show that his “mystery force” was real after all. Naudin of course took advantage of these replications of the experiment by showcasing them on his own website – which in turn lends additional credibility to his research.

As far as technology goes, the lifter demonstrates that science and engineering have more than their share of humorous irony. For the years that I researched Electrogravity and antigravity claims, all of the devices that I had seen required something “magic” to make them work. For instance, Bob Lazar’s UFO-claims could have been reverse-engineered except that they require ‘element 115’ to make them work – an element chemically related to Bismuth that is theorized to potentially have electrogravitic properties. I will come back to the possible electro-gravitational properties of Bismuth in a bit, as it turns out that this element may in fact provide some use for future lifter technology.

The Searl-effect disc is an even better example of the “magic” usually involved with building a working Electrogravity device. Searl’s ideas seem valid enough, but although he supposedly demonstrated several working prototypes in the 1950’s, he is currently pursuing millions of dollars in research funding in to replicate those experiments in a modern-day setting.

The irony involving lifter technology is that while inventors all over the world have been searching for the perfect electro-gravitational device for decades, the possible working proof of concept for many of these theories has been sitting in front of us the whole time – the lifter costs less than \$10 in parts to build, and none of them are magic – in fact, for my experiments, all of them were at stores within 2 blocks of my house — balsa wood from the craft store, aluminum foil from the supermarket, 30-gauge magnet wire from the local Radio Shack, and an old computer monitor for the high-voltage power-supply.

### **LIFTER PHYSICS**

Whether or not Jeff Cameron knew it at the time he constructed his lifter prototype, what he was actually building was a 3 dimensional representation of a drawing on a patent application by TT Brown in the 1950’s. In the patent application, the drawing shows a positively charged wire suspended over a grounded foil body which was meant to demonstrate the most basic Biefeld-Brown effect generator. While Brown’s drawing is a little different than Jeff’s design, the resemblance is uncanny enough to indicate that both of these men had the same basic force in mind.

TT Brown’s patent indicates that this Biefeld-Brown effect generator works due to a gradient electrostatic-field between the wire and the foil – in essence, these two elements compose a low-efficiency, high-voltage air-gap capacitor in which the difference in geometries between the two capacitive elements generates a net-

directional force from the larger element towards the smaller element. Jeff Cameron seems to have a practical axiom that goes along with this scientific philosophy, which is that there must be both a leakage current and a capacitance between the wire and the foil in order for the lifter to function.

Conventional physics says that two capacitor elements of different sizes will not generate a net-directional force, so what gives? This is actually the thinking that convinced me to abandon my research into Biefeld-Brown effect technology in 1996 – physics says it doesn’t work. What the books say will happen is that since the wire can only maintain a lower-capacitance than the foil, the overall capacitance between the two elements will be reduced to be equivalent to that on the smallest element (or plate) in the capacitor. This, of course, assumes a 2-element series-wired capacitor, such as the lifter.

I can give you the conventional physics answer to this small riddle by simply saying that the lifter uses a manifestation of ion-wind. This would state that the electrons crossing the air-gap cause a breeze that causes thrust – since the breeze would be traveling down from the wire to the foil, the thrust would be up, as demonstrated in testing. In the ion-wind explanation, the electrons are emitted from small-diameter of the positively charged wire in such great abundance that they move a significant airflow down to the foil where they are absorbed and transported electrically back to the HV power-supply’s electrical ground.

Conventional physics would seem to have the theoretical answer to why the lifter causes lift, but in the experimental setting, which is what we now have an abundance of thanks to Jean-Louis Naudin, the conventional physics explanation doesn’t suffice. Experimentally, there are several deviations from the ion-wind explanation that seem to invalidate it. For instance, if you completely contain the lifter in a plastic-enclosure, it will still generate lift – this would not be the case if a breeze was responsible for lifting the device. How could it be, if the breeze is limited to the inside of an enclosure which itself is levitating?

A more compelling proof that Biefeld-Brown is something other than ion-wind comes from Purdue University, where the lifter experiment was replicated inside a vacuum-enclosure with positive results. While ion-propulsion can work in space, it usually assumes that there is argon, krypton, or other noble gas to be used as the propellant – the vacuum enclosure showed that with no gas available for transport the lifter showed a moderate improvement in performance.

The vacuum enclosure tests are definitely compelling evidence that something else is going on other than ion-wind – at least compelling enough for NASA to file patent number 6,317,310 – “Apparatus and Method for Generating Thrust using a Two Dimensional, Asymmetrical Capacitor Module”. The NASA patent description – which can be accessed from Naudin’s lifter

website – is as vague as it is compelling in that NASA is basically requesting a patent on any technology that generates force using two geometrically dissimilar capacitive plates. Disregarding the fact that this patent was issued nearly 50 years after T.T. Brown's patent using nearly identical descriptions and pictures, and also disregarding the fact that NASA also doesn't understand why the lifter generates thrust, it seems apparent that this phenomena is gaining credibility in engineering circles while physicists seemingly continue to deny that anything is going on.

## **THE EVOLUTION OF LIFTER TECHNOLOGY**

Every good movie always has a sequel, and in technology, if at first a major government agency 'liberates' your idea, it may seem that a sequel is in order. In the case of the lifter, it would appear that the NASA patent would cover this technology to at least some degree – at least until someone overturns this patent under the prior-art rule – which means that the next generation has to be considerably more advanced to escape having the research and development be forfeit to the government.

The pursuit of more advanced versions of the lifter technology is currently underway by several independent inventors, as well as Transdimensional Technologies themselves. Most of the private research by inventors has delved into improving the current lifter design to produce a greater force output and utilize less power to do so. Because the lifter is so simplistic in design, many of these enhancements have been of a very basic nature.

Jean-Louis Naudin was the first independent inventor to do serious work with improving the technology behind the lifter – and even so, the majority of his work has utilized similar materials in more complex arrangements. Naudin has demonstrated dramatically increased lifting forces by building a “lifter inside a lifter” for demonstration purposes. Naudin has also done a great deal of work in taking breaking up the concept of the single triangular lifter into a parallel series of lifting cells – which means that these cells, working in parallel, can contribute to greater stability and higher force output than any single lifting element.

Saviour – an independent inventor working with Jean-Louis Naudin – has done some of the most interesting improvements on lifter design since those by Naudin himself. Saviour's concerns have not focused around the “bigger is better” philosophy that many inventors have stuck by – he has done several experiments to determine the radiation output, remote-controlled applications development, and materials analysis and improvement on the lifter that others have not had the time or expertise to conduct.

A recent experiment by Saviour demonstrates just how this gentleman's foresight is helping other experimenters – Saviour substituted nichrome heating wire for the common lightweight wire used for the emitter, and demonstrated that the lifting force greatly

increased when a higher potential 12-volt charge was used to heat the emitter wire in conjunction with the standard high-voltage charge coming off it.

Transdimensional Technologies – the developers of the initial lifter design – are taking the approach to optimizing lifter performance to another level. They are currently not-so-secretly working on a 2<sup>nd</sup> generation lifter, which will consist of a 1-piece layered material to replace the current wire and foil design.

The layered material approach to the lifter is an idea that Jeff Cameron may or may not have had after some lengthy discussions with Travis Taylor – the man responsible for testing some anomalous materials known as “Art's Parts”.

Art's Parts were some pieces of material sent by an unknown person to the Art Bell radio talk-show with a note stating that they were pieces of UFO wreckage taken from the often-cited “Roswell crash” in 1947. Whether or not the pieces of material actually came from that crash is unknown, but Art Bell did the honorable thing by sending them to an acquaintance in US Army research named Travis Taylor for a professional scientific investigation.

Taylor, who apparently tested the materials after-hours in a world-class research lab to avoid potential classification by his superiors, used an electron-microscope to determine that the layered materials were actually pieces of metal – containing several hundred microscopically thin layers of magnesium and bismuth. Taylor also tested the layered-metal with a high-voltage apparatus, which seemed to indicate that when a voltage was applied to the material, the layered metal would move – and in some cases levitate.

Taylor reported his findings to Art Bell and sent video clips of his high-voltage experiments, which eventually made it back to a permanent home on the Art Bell radio show website. In addition, Taylor conveyed his belief that the only manner in which the pieces of metal could properly be produced was through an advanced form of electron-deposition technology, due (apparently) to an absence of oxygen-molecules between the different layers of metals. Additionally, the layers of metal were too thin to have been mechanically produced.

Jeff Cameron indicated that Transdimensional Technologies maintained some contact at one point in time with Travis Taylor, apparently as professional colleagues in the defense community in Huntsville, AL. I am not an expert on this relationship, other than to say that to the best of my knowledge these two individuals knew and contacted each other, and that this is how Jeff Cameron might have come up with the 2<sup>nd</sup> generation lifter idea.

## **ADVANCED LIFTER TECHNOLOGY**

As an inventor, I couldn't care less whether or not the idea for the technology came from a crashed UFO. To be perfectly honest, I'm not what you would call a “believer” anyways, although I have often wondered

about it. My point is not to attempt to lend any credibility to "Art's Parts", but rather to tie in the properties of the anomalous material's high-voltage movement with the underlying theory of lifter operation.

Even mentioning a UFO in a respected publication or article is the kiss of death in today's world – and I wouldn't do it if it wasn't an intricate part of the story. The other interesting thought is that the layered material is once again partially composed of Bismuth – which is thought to possibly have some of the same electro-gravitational properties as Bob Lazar's Area 51 "element 115". Is there a similarity, or merely a coincidence between a claim that hasn't gained credibility and a technology currently under development?

The lifter in its own right is essentially a layered material. One of those layers is the emitter wire, which is highly charged with about 30kV worth of electrons, another layer is the air-gap, which is approximately 3 cm in height, and the final layer is an electrically-grounded "skirt" of aluminum foil that surrounds the lifter. It is also reasonable to expect that there are only two possible forces at work in the lifter – one of which being a possible ion-wind effect moving down from the emitter to the foil, and the other being a possible Biefeld-Brown effect, moving up through the foil to the emitter.

There are a few shortcomings in the lifter as a design that might be overcome if we could transition the layered material from one containing an air-gap to one that does not. For instance, the lifter is currently a rather delicate object, in that having a wire under tension as the emitter makes construction difficult for future automated assembly. Additionally, because the air-gap requires struts to support the emitter wire, a trade off involving the weight versus the strength of the struts is additionally involved in any current implementation of lifter technology.

Some of the other changes that would be helpful to implement when transitioning lifter technology from one type of air-gap to another are changes in the materials used to increase the dielectric capacity. High-K dielectric materials may be used to increase the displacement of electrons in the material to enhance charge transport. And since increasing the dielectric potential of the layered materials also increases the breakdown resistance, it means that thinner materials can be used.

Designing a lifter without an air gap would accommodate lower voltage requirements between the foil and the emitter. The voltage would not have to create the large e-field gradient to create a leakage current across such a large void. Therefore the overall voltage across the device could be greatly reduced, without much cost in thrust. A lower operating voltage in turn means that a lower-output power-supply can be used for a given amount of current, which increases the overall efficiency.

Transdimensional Technologies recent research is utilizing the layered materials approach to eliminate the air-gap and substitute for it high-k dielectric materials that may allow higher overall performance. Although they have not yet released details about the exact composition or thickness of the materials that they are working with, they claim to currently have a 10% reduction in weight using a low-voltage current across the thickness of their newest device.

## **FUTURE LIFTER TECHNOLOGY**

Thanks to the tremendous amount of research being done on lifter technology by Transdimensional Technologies and a loosely affiliated group of inventors around the world, the future of lifter technology seems very bright at this point.

Transdimensional hopes to release some breakthrough research to allow replication of their newest 2<sup>nd</sup> generation experiments in the very near future, and along with that stands the massive body of research and advancements being done by inventors and researchers such as Jean-Louis Naudin, Saviour, the Lifters-group, and myself.

My personal goals are to attempt to assist Transdimensional Technologies in popularizing this technology to increase awareness of it and help "spread the word" about what it is and how it can potentially help the world.

Imagine if instead of getting in your car and driving through the usual maze of thoroughfares and side streets you were able to simply type in your destination and have a flying vehicle take you there automatically. The lifter technology offers the potential to transform the current transportation market by offering point-to-point aerial transport without the need for roads or freeways.

Additionally, unlike the magnetic-levitation ("Maglev") technologies that are currently being promoted as the future of transportation, the lifter does not require a specially constructed and exorbitantly expensive track to operate – the greatly reduces the per-unit cost on the technology and opens the door for wider adoption by the general public for transportation solutions.

Other individuals are currently working to see if lifter technology may offer cost-effective methods of transport into space, which would reduce the cost greatly and allow a one-piece, reusable method of moving things into orbit.

## **LIFTER RESOURCES**

All of the research involved with the lifter technology is available to the public on the internet. The list of resources below are some of the better and more common resources to obtain detailed lifter information.

**American Antigravity**

→ <http://tventura.hypersmart.net>

→ The author's website that includes video clips, complete instructions, and other related lifter information.

#### Jean-Louis Naudin's "Lifter Experiments Website"

→ <http://jnaudin.free.fr>

→ A very in-depth website containing video clips, complete instructions,

#### World-Wide Lifter Replications

→ <http://jnaudin.free.fr/html/lftwrld.htm>

→ An overview with photos and video from many of the independent inventors who have replicated the lifter experiments.

#### Transdimensional Technologies, Inc

→ <http://www.tdimension.com>

→ The home page for Transdimensional Technologies, the developers of the lifter design.

#### Blaze Labs (Saviour's Research Website)

→ <http://bel.150m.com>

→ An excellent site on research into lifter enhancements, radiation testing, sealed devices, power supplies, and other topics relating to lifter technology.

#### Lifter Builders Group

→ <http://groups.yahoo.com/group/Lifters>

→ An email group for the exchange of research findings for those interested in building lifters or staying current on the state of the technology.

#### NASA Patent #6,317,310

→ The NASA patent regarding obtaining thrust from an asymmetrical two-dimensional capacitor, grant Nov 13, 2001.

## Research on the Capacitance Converter of Environmental Heat to Electric Power

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***Nickolay E. Zaev works on creation of the prototypes of converter energy, which do not require any fuel. The direct conversion of environmental heat to electric power is possible in the processes of "charge-discharge" in non-linear condensers or by means of "magnetization-demagnetization" of ferrites. Such converters of energy create cold and electric power without any fuel.***

Theory of the converter, results of early experiments on the generation of microwatt power, methods and features of research are given in this article. The methods of generation of a few watts power are described in details. The possibilities and difficulties of creation of powerful capacitance converters are discussed in this article.

### I. Grounds of research.

1.1. From positions of orthodox physics there is no subject of research. It is evident that the energy of charging (C)  $A_c$  condenser  $C_x$  is always equal or more than the energy of discharging (D)  $A_d$ , i. e. always  $A_c \geq A_d$ . Only the advanced analysis shows that it is not always

true. Exactly, in  $C_x$ , where  $\frac{\partial C}{\partial V} < 0$  an inequality  $A_d > A_c$

is possible, and in  $C_x$ , where  $\frac{\partial C}{\partial V} < 1$ , then the work  $A_c > A_d$ . Therefore we should discuss the nonlinear capacitors (NC). In the end of 1969 I noticed a systematic inequality  $A_d > A_c$  during the measurement of  $A_c$  and  $A_d$

of many capacitors with different dielectrics. Theoretical grounds and results of measurements of this phenomenon are given in the publications in 1984 [1], [2, page 73]. On the industrial standards NC (varicond), ceramic condensers VK2-ZSH,  $4.6, 8 \cdot 10^{-9} \mu F$  with an optimal voltage about 95 V it was stated that  $\frac{A_d}{A_c} \sim 1,21$  with the power to about  $98 \cdot 10^{-6}$  Wt and "generated" extra power is equal to  $21 \cdot 10^{-6}$  Wt.

1.2. In [1] and [2] the strict theoretical proofs of realization of  $A_d > A_c$  (there are four of them) are given.

On  $1m^3$  of dielectric  $|A_d| - |A_c| = -\frac{1}{2} a \cdot \epsilon_0 \cdot E_c^3$  ( $E_c$  is an intensity of the field, V/m;  $\epsilon_0$  is a dielectric constant of vacuum,  $a$  is a coefficient of nonlinearity of the capacitor). Below we state one more proof more connected with the parameters of circuit.

It is well known that with the charge of a linear capacity from the source of constant voltage  $V_0 = \text{const}$  through the resistor  $R = \text{const}$  it gets an energy  $A_c = \frac{C \cdot V_0^2}{2}$  exactly equal to the output energy in the time of charging  $t_c$ . The output energy irradiated from the load

$R$  is a Joule heat  $\Theta = R \cdot \int_0^{t_c} i^2 \cdot dt$  [3, page 546]. If NC

(nonlinear condenser) is charged, then there are no proofs of such equation. The NC are the variconds or other capacitors, which have  $\frac{\partial C}{\partial V} > 0$  in the interval  $V = 0 \div V_k$ . For the variconds  $V_k$  is some voltage, which corresponds to the maximum  $C_v$ . If  $V > V_k$ , then  $\frac{\partial C}{\partial V} < 0$ . For some other capacitors  $V_k$  is a voltage breakdown.

For further consideration let's believe that in the operating area of the given sample of varicond a function



# Reality and Consciousness in Education and Activity

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Relation of thought to existence is the main question of philosophy as science on general laws of Nature was formulated but it still did not interpreted and solved in the frames of generally accepted logic standards. The ways to solve it lead to futile discussions of materialists and idealists, to senseless disputes of determinists with eclectics and apologists of the "chance". This discussion lost its sense without a determination of terms under discussion and condemned debaters to have subjective "gustatory" senses, which were changing while aging and depended on the extent of received and conceived knowledge. Such is the situation in this link of World studying, which does not allow creating a logic chain of reasoning in the understanding of cognizable things.

**A paradoxicality of all things that happen is connected with incorrect translations and interpretation of wisdom of ancient philosophers** and scornful attitude both to the knowledge of distant past and classical heritage, which highlighted the elements of natural-science approach to Weltanschauung.

According to Plato, **an ideal thing** is a visual thing, which can be felt by our organs of sense. Therefore, the understanding of objective reality is mediated by the crowd of our feelings in such a way that perception of reality by means of these feelings gives us a notion of the World. Hence, **our notions about reality are the subject of research in science, but not the World itself, i.e. the World outside of our consciousness**. So, what should be studied in our notions about the World? Let us refer to the wisdom of ancient scientists again: "The World is given in motion and its laws are the laws of motion". Then, we should speak about laws, order, i.e. about relation and interrelation in the phenomena of motion. This is the distinctness in notions and actions (determinism) to predetermine further development of reality cognition logic, i.e. what has an influence on us and determines specific character of our perception. Further we can speak about formation of ideas about reality, which require some premises, principles to organize these ideas. These principles are given in classical heritage, in "Dialogues" by G. Galilee [1] and "Mathematical principles of natural philosophy" by I. Newton [2]. A notion of force as a measure for momentum was introduced, which manifests in action and disappears from the body after the action is over, and the body keeps its new state due to the inborn "inertia force". **But the force itself cannot do anything without its application with a certain speed**. Then we

introduce a notion of action as a product of acting force  $F_A$  and the speed of action  $V_A$ .

**We offer a law of interaction, which determines the interaction between action of the cause and the effect appeared during this action as a reaction, i.e. the product of the force of reaction  $F_R$  and the speed of reaction  $V_R$** . Thus, this interaction between the cause and the effect is determined by the transfer of action from one object to another in equal quantity, but with appearance of new quality, which is determined by specificity of interacting objects according to fundamental law of interaction:

$$F_A V_A = -F_R V_R$$

Unfortunately, an incorrect interpretation of interaction manifestation as an opposite counteraction became strong in our mind. This manifestation is perceived as a compensation of cause by action of the effect. Moreover, the incorrect way of writing of the mathematical form of Newton's third law manifestation established in textbooks and scientific literature due to the incorrect translation as  $F_A = -F_C$ . This very tragic situation for the science suppressed the development of logic in description of processes. Chance and statistic approach to the description of phenomena has taken place in our perception. This approach is based on the model of non-interacting elements, in which there is no order stipulated by the interrelation of elements. The science has developed this model and its properties, and this fact predetermined the evolution of notions about real World.

This ideology penetrated in mathematics, which for sake of physics began to study properties of objects, but not operations with them. Moreover, a possibility to reflect specific character of real physical processes in the interconnection of cause-effect relations by mathematical operations is not realized. It is essential, that fundamental law of interaction establishes manifestation and description of elementary act of cause and effect interrelation, **the law of manifestation of a Fact**. It means that order in the World is conceived through manifestation of concrete facts. The action of law of interaction lies in the basis of these facts.

**So, there is a conclusion: the World is perceived through the discrete manifestation of motion forms evolution**. Hence, the discrete mathematics of finite discrete aggregate can be applied to describe the World, but not the continual mathematics, which lies in the basis of traditional orthodox physics. All these circumstances lead to numerous problems and difficulties in description of our notions of reality, to the plenty of used principles, which are in contradiction to each other, as R. Feinmann noticed once [3].

And what we can get from determinism, which is based on fundamental law of interaction, law of cause and effect interrelation? **The change of force value in a reaction takes place, i.e. the change of value of the potential gradient, i.e. the change of energy**

**concentration.** This circumstance is visually demonstrated by the operation of Archimedean lever as well as in all phenomena of the real World. This is Archimedean lever, where the loss of speed takes place, but there is a gain in force. And the load raised on a lower height than the way, which was made by the applied force, will give a huge power during its free fall. This power is higher in so many times, in how many times the time of the load fall is less than the time of action spent on its raising! And this is the fact, which determines specific character of **creation in the real World**. We should attribute both quantitative and qualitative characteristics to energy. This is the side of energy manifestation, which is reflected in Plank's formula: energy is proportional to frequency.

Manifestation of fundamental law of interaction also lies in the basis of general universal regularity of evolution of real many-particle systems with the change in external conditions. This process develops in multistage way, and on the each stage the logarithm of the ratio between the event happened and the event to happen always is equal to the work of external forces. In other words, the relation of the event happened to the resource is in exponential dependence on the initial conditions and extent of external influence. Exponential character of development of processes is the evidence that Nature develops according to the law, which conserves itself during evolution. This regularity, which manifests everywhere, can be naturally called **the Principle of Order**.

Fundamental law of interactions and Principle of Order appeared to be enough to describe and understand phenomena in the observed World. And it is natural to expect that this principle of Nature manifest in finer World also. This World includes lower and higher frequencies, which are not available for us yet to watch this wide-range frequency-wave emanating Universe.

From all aforesaid we should make a conclusion that the logic, which exists in the traditional physical tool,

appeals to the model and principles of the World of non-interacting elements using the range of regularities, which also reflect some features of the real World, but they do not include fundamental law of interaction and Principle of Order, which are necessary and sufficient to describe reality. Descriptions existing in traditional physics are phenomenological ones and concern only those aspects of the phenomena under investigation, which do not include possible qualitative changes during development of processes, because the main property of real processes of interactions (creation of new energy property) was excluded.

The current situation in physics had a strong influence on formation and development of other sciences, other fields of knowledge, since the logic of reflection of cause-effect links was initially excluded. These are the links to determine existence, i.e. existence of constant creation of the World. All these circumstances give grounds to fundamentally revise educational programs, first of all, in physics, philosophy, mathematics, chemistry and biology. A change to the offered logic of cognition, which is based on the Principle of Order and fundamental law of interaction, will fundamentally change our notions about the World as well as will open big opportunities for new technique and technology. A Man has got huge opportunities in cognition and existence, but due to his immorality and features of incorrect aims in the logic of cognition he cannot use these gifts of Nature. We present wider and deeper view on the World and a Man in it, which allow analyzing, watching and operating with those fields of reality, which manifest in finer World, World of higher-frequency energies and other structures of fields. Logic of cognition had not touched these structures yet.

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## Old New Energy

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Two kinds of energy, accumulated energy [1] and free energy [2], are considered as an inexhaustible source of natural energy created by Nature itself. It is ecologically clean and possible to be renewed in natural conditions.

The energy accumulated in substance is released as a result of partial decay of substance in elementary particles. At that, the acquired defect of mass is so small

that it does not change chemical properties of substance and is compensated in natural conditions. Physical mechanism of energy-release lies in the fact that an electron in plasma layerwise takes sufficiently smaller elementary particles (electrino) from positively charged atoms or fragments of substance (ions). Electrino give their kinetic energy to plasma, heat it up and move beyond the bounds of reaction zone in the form of thermal and optical radiation. There is no substance, which could not take part in such process of energy-release, i.e. phase transfer of higher form (PTHF). The most appropriate, available and low-cost substances are air and water, which play the role of nuclear fuel in PTHF. It is turned out that usual combustion is also a process of PTHF, in which oxygen is a nuclear fuel and organic fuel is a donor of electrons. In the process of combustion oxygen atoms get the defect of mass equal

**concentration.** This circumstance is visually demonstrated by the operation of Archimedean lever as well as in all phenomena of the real World. This is Archimedean lever, where the loss of speed takes place, but there is a gain in force. And the load raised on a lower height than the way, which was made by the applied force, will give a huge power during its free fall. This power is higher in so many times, in how many times the time of the load fall is less than the time of action spent on its raising! And this is the fact, which determines specific character of **creation in the real World**. We should attribute both quantitative and qualitative characteristics to energy. This is the side of energy manifestation, which is reflected in Plank's formula: energy is proportional to frequency.

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to  $10^{-6}\%$ , which constitutes the so small value that it cannot change chemical properties of oxygen and does not call killing radioactive emanation.

There is a possibility to use energy properties both of oxygen and nitrogen of free air in the process of PTHF. To do this it is necessary to destroy nitrogen molecule at least in atoms or smaller fragments by some initiating influence. It is achieved by electrical discharge, magnetic flow, explosion and other means. These means consume much less energy than produced in PTHF. In particular, such processes were achieved in combustion engines. Such nitrogen mode of operation and combustion is accompanied by oxidation to  $H_2O$ , but not to  $CO_2$ , which is more effective in energy and ecological aspects. Accordingly, the power of engine increases and organic fuel is saved. Exhausts from this process mainly contain water vapor [3].

PTHF processes with excessive power release (more than consumed power) were also obtained in heat-generators operating with water.

Free energy diffused in the surrounding space could be transformed into mechanical, electrical or another kind of energy by means of vibration-resonance, electromagnetic and other energy systems. Classification of these systems as well as physical mechanism of energy transformation is given in [2]. The known Searl's engines can serve as an example of energy systems working with free energy.

The developed physical mechanisms of energy-release processes will allow to create industrial, stably operating, ecologically clean energy systems, which do not consume organic and nuclear kinds of fuel, harmful for humankind.

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## On General Nature of Forces



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### Introduction

In techniques and in our life we got used to certain physical notions concerning force. We usually use these notions in creation of automobiles, airplanes, rockets and other techniques, but we don't think about **the origin of forces** in general. Usually appearance of force in continuum is connected with presence of momentum gradient.

A number of works, which describe various versions about origin of a force appeared [1, 2, 5, 8, 17, 21, 22, 23, 25, 30, 35, 36, 38, 39]. Different mechanisms of appearance of force are considered in these articles. Usually they consider origin of a force in one of the fields,

which are: electromagnetic, gravitational and others. **There was a theoretical attempt to connect the force initiation with energy gradient [33]. Experimental proof of force initiation due to energy gradient was obtained in the works [7, 38].**

Below we made an attempt to show the general regularity of force initiation, which is connected with non-uniform distribution of energy in space. With this process, physical nature of any kind of energy and specific mechanism of force initiation does not play any role. These are only particular cases of general nature of force initiation.

### General nature of forces

We are surrounded by space, which is full of energy. Here we mean the energy of any nature: mechanical, thermal, electromagnetic and others. Energy is related with material world and its value is connected with the volume.

Any particle (volume) of continuum has energy:

$$A = A(x, y, z, t) \quad (1)$$

where  $x, y, z$  are Eighler's coordinates of the center of particle,  $t$  is time.

Transmission of energy from one point of space to another one can take place by various methods, both in connection with energy transmission by material particle itself (which is a "carrier" of energy in this case) and without such transmission (for example, with wave motion). For the volume degenerated in ideal point the energy will be zero. That's why it is more comfortable to operate with the energy density concluded in the

increasing constantly. We are the first who analytically got the law of gravity of the masses from the known equation of thermal conductivity. Appeared that on the relatively small distances (in the bounds of the Sun System) the law of gravity by Newton remains valid, but on the larger distances the sudden decrease goes on (Gauss integral), which naturally solves the famous Zelinger's paradox of gravity.

As a conclusion we should note that in the bounds of a stable galaxy of a spiral kind there is the circulation of ether. Ether moves from the periphery of the galaxy to its center (nucleus) by two spiral branches. This becomes apparent as a weak magnetic field (8-10 micro Gauss). In the nucleus of the galaxy there is the impact of two strings as well as there is formation of the spiral

toroidal circles (protons). Then the protons form the adjoined vortexes around themselves (electron shells) and from the proton- hydrogen gas the stars are forming, which are moving to the periphery by the same branches. There they dissolve in ether at the periphery since the protons will lose their energy and stability due to the viscosity. Ether which has got the freedom will return to the nucleus of the galaxy and this process is going on in our galaxy for hundreds milliard years and it will keep going until the new center of vortex formation will begin to concentrate ether. Then the new galaxy will appear and our galaxy will disappear. But it will not happen soon and we have enough time to understand that we should return to the concept of ether in modern science.

## Experimental Demonstration of Cosmic Influence on the Earth Life in N.A. Kozyrev's Researches ("On the Influence of Time on Matter")



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*Editor's note: this article represents a part of the big scientific conception "World models in the new scientific progress". On applying of this conception a great number of practical technical devices have been created (as an example of such device we offer the description of universal electrical bio-heater, which was created by the group of researchers from Bishkek, Kyrgyz Science Technical Center "Energy" during the work on ceramic electroconvector).*

***We have to note that the position of our editorial board concerning "time" and Kozyrev's work is not in a good correlation with the authors' one.***

Nicolay Alexandrovich Kozyrev scientifically and experimentally discovered the action of relations' interconnection, which was falsely named as time. Time cannot cause action because it is absolute and does

not have any physical sense (Samat Kadyrov. Monograph "Theory of unified field").

**Author's note: relations' interconnection is an interaction of structurally similar objects. It is a nuclear resonant gain-frequency process: in a stationary electric field, which is modeled by systematic organization, there is a development of similar to structural one, in-focus rays of powerful regular coherent radiations. These coherent radiations are determined by properties of chemical components of interrelated substances.**

According to N.A. Kozyrev, it is ought to expect not identical density of relations' interconnection in space. Some processes decrease density; others on the contrary increase density of relations' interconnection. Action of the increased density is weakened according to the law of reversed squared distances; it is shielded by a solid matter, at thickness about 5cm, and is reflected by a mirror, according to the familiar optics law. The action of the decreased density on a detector is shielded, but does not reflected by a mirror. Properties of a matter can be changed under the influence of relations' interconnection. In this sense there is a big advantage in changes of electric current conductivity of resistor, which is brought into Witson bridge and is located near some process. For instance, in order to increase density it is useful to realize the process of evaporation of a volatile liquid; and for density decrease the process of cooling of a warmed-up agent can be realized. Due to these processes, change of conductor resistance is actually realized with opposite signs. Increase of density of the conductor with positive temperature coefficient leads to decrease of its resistance. At negative temperature coefficient there is an effect of the opposite sign, in the direction of changes, caused by temperature changes. Such correspondence to fall in temperature should be observed at changes of other properties of a matter, **because disorder in a matter structure is reduced along with fall in temperature.** The researches have shown the following results at the resistor, which was situated near processes of acetone evaporation on cotton wool and of solution of sugar in water. The

relative resistance change of resistor was observed at the 6<sup>th</sup> or 5<sup>th</sup> digit after comma (or even at the 4<sup>th</sup> digit if resistors had especially high temperature coefficient).

There is now a possibility to study the Universal World not only by means of the investigated spectrum of electromagnetic oscillations, but also through physical properties of relations' interconnection.

At many researches the influence of relations' interconnection on resistor electroconductivity was investigated. Acetone evaporation (at 10-15 cm distance from the resistor) was applied there as the process, which controls sensitivity of a system. However, the process of evaporation can influence on the resistor not only with density increase, but also due to temperature increase that occurs at evaporation. In order to take into consideration this cooling effect, (in the area of evaporating acetone) temperature was measured by Beckman mercurial thermometer with 0.01°C multiplying factor. The first experiments (without thermal protection) have shown the fall in temperature by several hundredth of degree. This fall was enough to cause the changes of resistor electroconductivity. However, the thermometer had been keeping on the demonstration of practically the same fall in temperature at thermal insulation of the resistor. The thermometer reacted on the radiation of relations' interconnection at acetone evaporation.

The part of the thermometer with a placed in a pasteboard tube mercury tank was laid round with cotton wool and put into a glass retort. The experimental process was fulfilled near the retort, and the reading of mercury altitude in capillary was determined by the scale of the thermometer through the closed window in the next room. The mercury altitude was decreased at dissolution of sugar in water (with steady temperature) and it was increased at the release of the squeezed spring, which was placed near the thermometer.

The radiation of the relations' interconnection was observed from many stars. It is caused by the inner processes, which take place on these heavenly bodies. The Sun (with its turbulent processes) radiates the relations' interconnection besides the searched electromagnetic radiation. Actually, if sunlight is recovered with a thin screen, the significant influence on the resistor will be discovered. The influences of the Sun to the Earth through the relations' interconnection become doubtless. These influences of the Sun should have a particular significance in vital functions of organisms, because it brings the beginning for life support. The totality of the researches

demonstrates the dependence of matter state from the changes of the general background of the relations' interconnection. The drift of the devices (that show daily changes) usually stops about at midnight and then changes its direction. As for the seasonal course, there is a density decrease of the relations' interconnection in spring and summer; and there is an increase of it in autumn and winter. It is connected with the absorption of the relations' interconnection by the vital functions of plants and with the return of it at their fading. There are indications at the seasonal changes of chemical processes. For instance, reaction of polymerization has more difficulties in its realization in springtime. V. Zhvirilis observations of minimum and maximum light admission by means of the crossed Nickolya prisms can be explained by the crystalline reconstruction of these prisms.

By Kozyrev, as being invisible, vital source is disseminated everywhere in Nature, thus possibility of its accumulation is the only necessary thing. Such a possibility is realized in vital organisms because all vital functions counteract to the usual course of systems' destruction. The ability of organisms to keep and accumulate this counteraction is the reason, which determines the great role of biosphere for the Earth life. But even if we assume, that spreading of life in Space is one of its peculiar properties, biosphere will not have a decisive significance.

Cosmic bodies (and first of all stars) can serve as the reservoir, which gathers vital source. Enormous stocks of energy flow out of stars in a very weak degree through the radiation of comparatively cold external layers. Inner stars energy is preserved so well, that even at the lack of supplement, matter of the Sun would become cold only at one third degree per year. For the Universe the creative source carries the relations' interconnection. Thus cosmic bodies are necessary for support of life.

*Author's note: We apprehend relation's interconnection as natural radioactive background. In fact, it is a nuclear resonance gain-frequency interaction of inertial masses that depends on living systems, especially on its rituals and that regulates its survival. Cosmic bodies regulate this process. Humanity is able to control nature only obeying to natural laws. In-focus beams of powerful laser streams are formed in the electric field of living system organisms. The creation of proton-antiproton pair in the living cells, alongside with the process of the absolute release of energy serves as a creative vital force. The process of radiation, support, absorption of energy by the organization (assembly of particles) is realized through the relation's interconnection and regulates its total mass.*

***Humanity is able to control nature only obeying to natural laws.***

# Life without Diseases and Old Aging Preventive Electrical Heater with Programmed Features

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Universal electrical bio-heater is intended for heating of rooms and preventive clearing of an air atmosphere from disease-producing organisms at continuous exposition (continuous work). The principle of its work fundamentally differs from those of the existing analogues. Carbon crystals are in the basis of bio-heater, which makes it environmentally appropriate.

Bio-heater represents a range of ceramic cylinders, jointed with metal plates on top and underneath. These plates play the role of load-carrying structure. It is used in production areas and living rooms for heating alongside with destruction of pathogen microorganisms. One bio-heater with 0,2 kWtt power is oriented for heating of the area with volume 35-45m<sup>3</sup> (in the future production of modernized models powered from solar cells is planned).

As distinct from the usual oil heater, preventive electrical bio-heater destructs agents of infectious diseases, whereas, according to the researches, oil heater stimulates their reproduction.

Absolute ecological cleanness is obtained by release of the quarters from the effect of increased atmospheric dampness with the temperature, appropriate to sanitary code. Any type of mold or fungus disappears in the quarter and in the future these forms do not renew their existence (even after removal of bio-heater).

The absence of injurious radiations is attained by the following: features of raw material, which is used during the process of electrical bio-heater production; radiation is normal during bio-heater working. Pollution-free temperature influence is attained by favorable infrared radiation.

Among the other properties of electrical bio-heater there are following: fire-safety; explosion proof; chemical inertness; enormous effectiveness from the point of view of electric energy demand. Structural simplicity facilitates its durability; there is nothing in bio-heater to be broken.

Technical aspects (applied Know How): In the process of technologic production of ceramic cylinders, from which bio-heater is consisted, **diamond-like cellular**

**ceramic structure** with superimposed combination of atoms of lattice elements is created. Rhythmic work of cells, which form ceramic mixture, leads to resonance and creates a kind of blow wave (at micro level). This blow wave physically destroys microorganisms that have no calcium framework. It is related only to those microorganisms that are agents of infectious diseases, such as: staphylococcus, enterococcus, enterobacterium, etc. Thus parameters of the evoked blow wave coincide with vibration frequency of the definite types of bacterium and elementals. These blow waves cause the similar effect in room near of bio-heater, e.g. colonies of microorganisms are noticeably decreased there (even at the absence of bio-heater in the nearest room).

Due to its self-organization, bio-heater works in the range of living systems, it is approached to them. There is a realization of active connection with living coaly forms of biological systems. Actually the work of bio-heater is adjusted to them. Bio-heater properties can be programmed at the process of its production.

Bio-heater is a patented product. Patent KR #464 MKI C 04 V 33/24 "Ceramic mixture, possessing heat-radiating properties". Application #20010075.1 at Patent KR #464 MKI C 04 V 33/24 "The way of creation of energy, renewable, programmed hard-phase ceramic-carbon mass structure". Application at Patent KR #464 MKI C 04 V 33/24 "Technology of producing of electrical heaters with anti-resonant air prophylactic effect".

Finale product (FP) purchase is not more expensive than those of existent models of electrical heaters. Cost value is noticeably brought down on organization of the scaled production. It is ought to take into consideration that from all existent types of heating, from the customer's point of view, this one is the most energy-efficient. Manufacturing of such bio-heaters can be organized on the base of acting industrial production of ceramic fabrics. It will require some expenses. Moreover production service is rather cheap because there is no need in maintenance staff.

Electrical bio-heater can be applied everywhere, where there is a need in: a) economical heating; b) decrease of air moisture; c) disinfections of rooms.

As for the life cycle of bio-heater it does not become obsolete morally and technically. It is produced from the materials, which are not liable to wear.

The invention has a certificate of KR Gosstandart. From the end of 1998 the first unimproved modification of bio-heater (with power 0,6 KWtt) were put into serial production in Bishkek (with small test production runs). This time bio-heaters are readily used as medical equipment in hospitals and maternity hospitals in Bishkek. **Inventor: Alexandra L. Belyaeva.**



# Technical Report

**The comparison of quantity of heat energy, required for heat of rooms, and of heat quantity, which is produced by Belyaeva's electroconvector.**

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*Editor's note: this calculatious demonstrates the advantages of the device, which at 340 Wtt energy consumption produces about 700 Wtt of heat power.*

The calculation of heat output, coming from the ceramic electroconvector to a room, was based on the basis of research statement of EVNA-0.2/220 electroconvector's influence on air micro flora of industrial rooms at 23.10.01. - 06.11.01. period.

The researchers were carried out in the arbitrary room in a four-storied large-panel building. This room was on the 3<sup>rd</sup> floor, with facing east windows. The room was of 52.5 m<sup>3</sup> air-space, 3.5 m height and 15 m<sup>2</sup> area. The calculation of heat, was made on the basis of "Methods for calculation of the requirement in heat and electric energy of buildings". These methods were registered by Department of Justice of Kyrgyz Republic

on 08.09.2000, #154. According to the normative data, temperature of inner air ( $t_{in}$ ) in the room must be equal to +20° C. In Bishkek planned specified temperature of external air ( $t_{ex}$ ) for heating is minus 23°C. The average temperature of heating period is  $t_{av} = -0.9^{\circ}\text{C}$ , specific heat characteristic of the building is:  
 $q=0.4 \text{ Kcal/m}^3 \text{ h }^{\circ}\text{C}$ .

Medium quantity of heat energy, which is required for heating, is determined by the formula:

$$Q_{av} \text{ heating} = q \cdot V \cdot (t_{in} - t_{ex}) \cdot 1.12 \cdot [(t_{in} - t_{av}) \div (t_{in} - t_{av})] \text{ Kcal/h}$$

$$Q_{av} \text{ heating} = 0.4 \cdot 52.5 \cdot (20 + 23) \cdot 1.12 \cdot [(20 + 0.9) \div (20 + 23)] = 492 \text{ Kcal/h}$$

Thus at the average annual temperature of the heating period, which is:  $t_{av} = -0.9^{\circ}\text{C}$ , the quantity of heat energy required for this room, comes to 492 Kcal/h.

According to the research statement, the trials of the electroconvector with 200Wtt power were carried out at the following external air temperature: +10.2°C; +8.5°C; +10°C; +6.6°C. The calculation data and results of its examination are brought together in a table. The parameters of electroconvector with 340Wtt power are demonstrated in the same table.

**Table 1**

**Table of determination of heat entry and heat consumption's correspondence in the experimental room**

#	External air temperature, °C	Inner air temperature °C	Normative heat consumption KWtt (Gcal/h)	Experimental heat consumption KWtt (Gcal/h)	Percentage depending on normative heat consumption %	Economy of heat energy kWtt (Gcal/h) comparing with power consumption of the device 0.2 kWtt (0.000172 Gcal/h)	Economy of heat energy kWtt (Gcal/h) comparing with power consumption of the device 0.34 kWtt (0.000292 Gcal/h)
1	- 0.9	+20	0.572 (0.000492)		100	-	
2	+10.2	+20	0.267 (0.00023)		100	-	
	+10.2	+16		0.158 (0.000136)	59	0.2-0.158=0.042	0.34-0.158= =0.182
3	+8.5	+20	0.314 (0.00027)		100		
	+8.5	+17		0.233 (0.000200)	74	0.2-0.233=-0.033	0.34-0.233= =0.107

4	+10	+20	0.273 (0.000235)		100		
	+10	+23		0.355 (0.000305)	130	0.2-0.355=-0.155	0.34-0.355= =-0.015
5	+6.6	+20	0.366 (0.000315)		100		
	+6.6	+19		0.338 (0.000291)	92	0.2-0.338=-0.138	0.34-0.338= =0.002

Calculation data demonstrate a considerable economy of heat energy at daily unevenness of external air temperature.

Heat productivity of the new structure of electric convector with 340Wtt power was calculated on the assumption on the suggestion that heating of the room is carried out by the irradiation at the process of heat exchange.

$$E = \varepsilon \cdot C_0 \cdot T^4 \cdot 10^{-8} \quad \text{Wtt/m}^2$$

where:  $C_0 = 5.67 \text{ Wtt/m}^2 \text{ K}^4$  is a radiant emittance of blackbody,  $\varepsilon = 0.93$  is an emissivity factor of the surface of earthenware duct tube;  $T = 70^\circ\text{C} = 343 \text{ K}$  is the temperature of the surface of earthenware duct tube.

On substitution of the known values into the formula we get:

$$E = 0.93 \cdot 5.67 \cdot 343^4 \cdot 10^{-8} = 727 \text{ Wtt/m}^2$$

As the area of irradiation surface is equal to  $S = 0.96 \text{ m}^2$ , then quantity of heat, which is evolved by the convector, comes to:

$$E_k = S \cdot E = 0.96 \cdot 727 = 698 \text{ Wtt (or 600 Kcal/h)}$$

The quantity of heat, which is required for the heating of the room, is 492 Kcal/h (at the external air temperature equal to minus 0.90 and temperature in the room equal to plus 200).

**Thus, electric convector with 340 Wtt power is able to heat totally the room with 60m3 area.**

*Editors note: 340 input and 700 output!!!*

## Longitudinal Waves in Vacuum: Creation and Research

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***The author presents a new elegant system, which is the symmetrized Maxwell's equations. In practice it gives a possibility to create the longitudinal waves in vacuum. This system is of great importance in telecommunications and aerospace technique.***

There is a stable paradigm in electrodynamics that the existence of the longitudinal waves in vacuum is impossible. This paradigm played its negative role preventing scientific minds from solving this problem. However, Maxwell was not as categorical in his opinion on this question as his following were.

Particularly he wrote: "Science of electromagnetism as well as optics is not able to confirm or deny the existence of longitudinal oscillations."

Maxwell's dynamic equations are usually considered as partial derivatives in time. However, the total

derivative in time includes the so called substantial derivative, which was shown in the equations for the moving coordinate system. In particular, one of these equations was written by Maxwell himself to explain the phenomenon of electromagnetic induction discovered by Faraday. This induction takes place in the conductor moving across the field lines of electromagnetic field:

$$\vec{E} = \vec{V} \times \vec{B}; \quad (\text{I})$$

Other equations were obtained later by other scientists. In the table I below Maxwell's equations are given in a split form. Their static and dynamic parts are given separately as well as the equations for moving and fixed coordinate systems. Such matrix concept of Maxwell's equations allowed finding their incompleteness. Really, the analysis of the matrix shows its high symmetry. However, full symmetry of the system of equations is broken by the absence of the equation (X). It seems to be strange and calls a desire to remove this defect in such an elegant system of equations.

A new equation is introduced in the Table 1 for the full symmetry of the matrix:

$$\nabla \cdot \rho = -\frac{1}{c^2} \cdot \frac{\partial \vec{j}}{\partial t}; \quad (\text{X})$$

# Fundamental Properties of Aether

Alexander M. Mishin

***Author's note: In the article the principles determining major properties of aether are formulated on the basis of an empirical material.***

Real aether [1-6], the primary and superfine essence of which is still a secret, has turned out to be absolutely non-standard superfluid three-dimensional material medium, which simultaneously is at solid, liquid and gas phases. The first master phase of aether is a specifically solid absolute space or an energetical "bottom" of the Universe ("celestial stronghold"). At that the solid phase is considered as mesomorphic vortical-wave structure, which has particular holographic properties. Classical matter represents to be one of the stable and energetic space-time levels of the Universe. Aether vortexes exceed all conceivable space scales, have quasi-material properties and create a great number of stereo-dynamic subspaces (parallel worlds).

The first basic principle, to which aether entirely follows, is the principle of the least disturbance (the least action). Many well-known and unknown physics laws are the subsequent of this principle. In particular, any motion in macroscopic aether happens in such a way to minimize the interaction with the matter of our world, with zero moment of the disturbance momentum. In the classical physics this principle has been reflected as Le Shatelye principle, as variation principle, laws of thermodynamics etc.

The second principle is the principle of fractality, which confirms the similarity of forms and properties of quantum aether vortex structures regardless of their space scale. This principle also determines the Universe as stereodynamically multivariate system in the form of hierarchy of vortical-wave structures of the unified aether (fractal matreshka). On the researching of the macroscopic objects of the Universe it is possible to make a conclusion about microcosm structure if taking into account the changes of frequencies and velocities of action transmission.

In the third place there is a principle of physical autonomy, which confirms that any solitary mass (for example a planet) creates aether system. The particular principle of relativity, which reflects one of the fractal properties of the Universe, can be applied to this system. Such autonomous mass becomes similar to the miniuniverse with its aether subspaces, which repeat the basic phases of the Universe spectrum in more narrow (which depends on the size of mass) frequency band of space-time frequencies. Thus, in the local system of the Earth solid aether reproduces the structure of gravitational field with energy "bottom" in the mass center. As the result such spherical body occurs to be an energy drain and warms up from within.

The fourth is the principle of interaction between matter and vortex-wave forms, which do not depend to the spectral part of the Universe, that is quasimatter. This is the principle of new interaction in nature. The value of energy interaction in each experiment diminishes in time according to exponential law that is explained by the forming of energy informational or adaptation barrier, which separates parallel worlds and reflects the properties of vortex tenacity of aether as superfluid medium. At that, time of interaction is proportional to the size of quasimatter and the barrier for the earthly conditions is lowered at the indefinite period, on the assumption of only thrice-repeated observation of forces (triad law).

According to this principle, aether dynamic experiments in the earth laboratory do not have classical repeatability that, from the one hand, gives occasion to doubts in the objectivity and scientific character of the non-traditional experiments and from another hand it is the most reliable test feature of macroscopic aether motions. Biosystems have special relations with this principle.

The fifth is the principle of many-dimensional autobalance of forces. All vortex and linear motions of macroscopic aether organize themselves in the way that in the band of space-time spectrum of the local system (usually with the aid of fluid and gas aether) occurs to be self-balanced, that is they have zero resulting impulse and the moment of impulse due to the existence of the proportionate antivortexes and antistreams of another spectral structure at the same space volume. The self-balanced vortex structures and streams are practically closed for the outer watch from the direction of our material world, at least with respect to the methods of classical physics. The principle of autobalance of forces reflects aether properties as unified synergetic system and has a significant applied meaning.

Let call the principle of viability of aether dynamic systems as the sixth principle. Only a stereodynamic multivariate system is a viable one, that is a system, which during a definite period of time has the opportunity, called as life cycle, to realize interconcerted self-oscillating processes of vortex-wave character simultaneously at different phase states (subspaces, layers) of aether. The most important features of such a system are its space-time quasimaterial (vortex-wave) broadbandness and finite time of existence, which is determined by the conditions of creation of the energy-informational barrier. Self-oscillation regime demands the presence of an energy source, oscillatory circuit (a pendulum) of any character, intensive process (of negative tenacity) and a channel of positive feedback (negative entropy).

In the sense, referred above, any material system is viable and occurs to be a big system in the form of coordinated community of multivariate subsystems. In its turn each big system as a part of the hierarchy is a

constituent of bigger system, until everything is embraced by the Biggest System, that is the Universe.

The seventh principle of the universal energy interchange is the physical realization of the law of unity and struggle of oppositions. This principle determines spontaneous creation of thermodynamic and antigravitation potentials. Any local matter mass (a body), situated in the open space, creates an exchange process with the surrounding aether volume in the way that more fine-structure fluid aether is absorbed by the body, and the less power-consuming gas aether is radiated. As the result the body as a heat engine gets energy due to the cooling of aether exteriors. At that, antigravitation forces acts between bodies and aether exteriors, which have different temperature.

This principle, which establishes the existence of antipodes of the second law of thermodynamics and Newtonian attraction, is realized mainly in cosmic scales and explains in which way the energy is created in the bowels of planets and stars and why the Universe is stable as regards to gravitation. Obviously, the most unexpected for the modern Physics is the discovery of non-traditional nuclear processes where conditional reactions of decay and fusion occur at the usage of quasimatter.

More deep research of new experimental results and of the stated above scientific principles lets to determine the priority-driven strategic tendencies in Physics, to open more entirely the laws of mechanics and

thermodynamics of many-dimensional aether, including the theory of non-traditional waves and new types of electromagnetism. At that, the supreme aim is the research of differences in aetherodynamics laws on the Earth (in a laboratory) and in outer space, the unknowing of these differences has caused logical insularity, false all-sufficiency of classical physics, which had refused as "not wanted" the aether conception and fundamental Universal laws.

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## Irving Langmuir and Atomic Hydrogen

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### *Editorial*

*In this paper Dr. Nicholas Moller describes the history of development of Atomic Hydrogen technologies in details. It is remarkable that this technology can be applied not only for welding processes but also as a clean free energy source. It is important to note that in this case the hydrogen process does not involve a consumption of hydrogen, which is not combusted in the process. Atomic hydrogen is not really a fuel but rather a medium, gateway or a super-conductor of ZPE form the vacuum of space, converting ZPE radiation and ultra-high frequency electrical energy into infrared (heat) radiation.*

This is the story of Irving Langmuir who was the first to develop a theory on Atomic Hydrogen on the basis of empirical research and experimentation. His work in this field lasted from 1909 to 1927. During this period he was employed by the Research Laboratory of General



Irving Langmuir.

Electric Company. Patents and discoveries developed by Langmuir during his time with General Electric were to a considerable extent instrumental in laying the foundations for what is today one of the largest corporations in the world.

The question that gave birth to this article, is why his work and discoveries on Atomic Hydrogen were the only work that received hardly any attention at all and why his revolutionary breakthrough was deprived of world attention for almost 100 years? This question becomes even more relevant when taking into consideration the high standing he enjoyed with his contemporaries (including being awarded the Nobel Prize in Chemistry)

and it is better to make it distantly after exclusion of man presence near experimental stands and devices. At the same time it is quite obvious that on applying of small capacity and fixed time of irradiation it is possible to develop methods for curing of human diseases, which are considered now as incurable (for instance of diabetes, some diseases of haematogenic system, of cancer and possibly of AIDS).

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## Effect of Magnetic Blow Wave Field on Wine Systems

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### Introduction

Authors communicate the data on influence of Magnetic Blow Wave (MBW) field on several wineproducts. It was found, that MBW did not lead to significant changes in the major components of the wineproduct (sugar, organic acids, minerals). At the same time the taste and aroma of treated wine become more pleasant; content of heavy alcohols and wine stone in the treated samples was less than in non treated ones. A mechanism of transformations was also discussed.

**Keywords:** *Magnetic Blow Wave (MBW), Wineproduct, GLC of aroma compounds and ethanol, HPLC of sugars, Atomic Absorption Spectrometry (AAS) of minerals, Heavy alcohols and aldehydes, Wine stone, Turbidity tendency, Organoleptic evaluation*

Magnetic Blow Wave (MBW) was obtained for the first time during the investigations on ball lighting generation under the laboratory conditions (Shakhparonov 1994). MBW as a physical object is interesting because of some facts, which suggest that MBW is a magnetic monopole. The MBW can also interact with the matter and transforms it in a definite way. Typical example is an elementary carbon in the form of graphite, which is transformed by such magnetic treatment into ferromagnetic substance (ibid).

The graphite, which is initially diamagnetic, transforms to paramagnetic one with general radiation dose of about  $7 \cdot 10^{19}$  neutrons/cm<sup>2</sup>. Other types of radiations could not affect this way (Svoistva 1975). So one unit of MBW can be considered as  $1 \cdot 10^5$  of neutron masses. This fact may be regarded as an indirect evidence for assuming that MBW and magnetic monopole are the same things. In the absence of excited radioactivity a slow MBW [ $v/c < 1 \cdot 10^4$ ] occurs, which does not ionize atoms (Devons, 1963). Therefore, their interaction with the matter can be observed only indirectly. No data exist on the interaction of MBW with organic substances. The experiments and results reported in the present communication may be a starting point for development of technology and to formulate the methods for vintage wine and best quality spirit production.

### Materials and Methods

Assuming that MBW and magnetic monopole are the same things, a number of conditions were selected for all experiments. The MBW source and the samples were placed in the same axis and the axis was oriented according to magnetic meridian direction. Such magnetic orientation is appropriate, as the energy of magnetic monopole theoretically increases in a magnetic field (Devons, 1963). All of samples were placed at 250 cm distance from MBW source, in hermetically closed glasses. It should be noticed that MBW could penetrate through many other barriers, for example into cast iron reservoir with wall thickness of 5 cm (Amaldi, 1970).

The quality investigations were made by using of standard equipment. HPLC, equipped with refractometric detector was used for sugars estimation. Separation of organic acids in forms of their ethyl esters and acid esters was carried out chromatographically using a column packed with polyethyleneglycol succinate and the following temperature option: initial temperature is 120°C, final temperature is 220°C, temperature growth rate: 8°/min. GLC was also employed for determination of ethanol. Minerals content

was examined with Atomic Absorption Spectrometry (AAS). Electronic spectra of samples were obtained with double beams UV Vis spectrophotometer equipped with permanent wavelength scanning. Redox potential was measured with EV-74 potentiometer.

The aroma alterations in the wine samples were investigated by GLC method after preliminary concentration of aromas by solid phase adsorption. The concentration was carried out by barbotation of inert gas (nitrogen) through liquid and consecutive catching of volatiles with tube trap, filled by Polysorb 1 sorbent (Lur'e 1972). The well-known analogue of Polysorb 1 is Porapak Q. The tube may be regarded as a short chromatographic column, and volatiles go through it according to their retention times. The choice of sorbent was motivated by the fact, that retention times of water and ethanol was rather small (ibid). Thus, a concentration process can be ended at the moment, when water and ethanol have passed through the column, as the other volatiles remained bonded. The aroma desorption was made with ethyl ester. The analysis of the concentrates obtained was carried out with gas chromatograph equipped with flame ionisation detector (FID), column 3 m x 3 mm, packed by Carboxav M on the Supelcoport. Temperature for the analysis was programmed from 100 to 190°C with increase of 1°/min. Isothermal conditions in the borders had durations of 2 and 40 min respectively. The "mild" conditions of separation were also employed (initial oven temperature was 80°C with isothermal condition duration 5 min, temperature growth rate 1°/min, final temperature 150°C and isothermal condition duration 40 min).

Optical activity was tested with Spectropol at D line of Na (580 nm). The samples were evaluated organoleptically by a group (12 persons) of workers from Russian Institute of Canning Industry. Turbidity tests were made under the methods of Valuiko et al (1987). In some cases, qualitative tests were completed by MPL turbidimetric measurements. Before testing samples were filtered. Determinations of heavy alcohols and aldehydes contents were carried out in accordance to National Standard (GOST, 5363-67) as follows below. Determination of the constituents of "heavy spirits" (i pentanol, i butanol) was based on reaction of the sample with salicylic aldehyde in a presence of H<sub>2</sub>SO<sub>4</sub>. Rose colour develops if sample contains the heavy alcohols. The density was measured with Vis-photometer and the quantitative determination was carried out using standard graph made with mixture solution of i pentanol and i butanol. A method for determination of aldehydes content is based on a reaction of fuchsine sulphite. The developed colour was measured with Vis-photometer. Calibrating plot constructed basing on typed solutions was used for quantification.

## Results and Discussion

Investigations of wine quality changes after MBW treatment were performed using two samples of portwine ("Zemfira") type wine. Sample 1 was a

reference (non treated) and sample 2 was treated with MBW.

In both samples, the fructose and glucose levels were practically the same and amounted to  $43.8 \pm 3, 32.22.5$  g/l respectively. Sucrose and maltose were absent. Total sugar content was 76.0 g/l though the level marked on the label was 80 g/l. It is thus apparent that the treatment of wine with MBW does not lead to noticeable changes of sugars content. Results of organic acids determinations are given in the Table 1.

**Table 1**  
**Main organic acids content, g/l**

Acid	Treated wine	Initial wine
Lactic	0.0265	0.00187
Oxalic	0.010	0.0088
Succinic	0.209	0.18
Malic	4.56	4.22
Tartric	0.0805	0.0895
Citric	0.401	0.483

Standard deviation for the determination method was estimated as 7 %. This fact shows that differences in organic acids content are not significant. It should be noted that a tendency of slight increase in light acids (up to malic) in the treated wine was observed in contrast to noticeable change in more heavy acids. The ethanol content of both of samples was 181 and 184 g/l for non treated and treated samples, respectively, though the label on the bottle indicated 190 g/l concentration. Standard deviation was 5 %. Thus, MBW treatment does not lead to significant changes in alcohol content.

Atomic Absorption Spectrometry (AAS) data indicated that the samples were practically identical in terms of K, Na, Ca, Mg, Fe, Cu and Zn contents (data are not shown).

Similarly, spectra of treated and non treated wines, diluted 150 times before photometry, were practically identical, thereby pointed out that polyphenols are unchanged.

When wine is industrially treated with IR or microwave heating, ultrasonic, ultraviolet and g radiation, different reactions occur and there include redox reaction, esterification, condensation, hydrolysis, Maillard reactions, etc (Kishkovsky 1988). Most of reactions are accompanied by redox potential changing. Increase in Redox potential points out the increase in concentration of oxidants, i.e. oxygen, peroxides, and other compounds, which are electron acceptors. Redox decrease is a result of oxidation processes (ibid). Redox potential was practically constant ( $\Delta E = 145$  mV and 150 mV in samples # 1 and 2 respectively). Evidently, oxidation processes, like they occurred during heat treatment, were absent during the MBW treatment.

One of the important reactions to be considered is the Maillard reaction. Essentially it appears in form of browning, decrease in reducing sugars and amino acids, and new aromas formation. While our result evidences on absence of irrelevant aromas, alterations of wine colour, and sugar content, thereby indicating insignificant contribution of Maillard reaction on wine quality changes due to MBW treatment. Technological treatment often leads to esters accumulation that improves wine aroma. It's well known that the most important in this context are the esters of C<sub>6</sub>-C<sub>14</sub> fatty

acids (Kishkovsky 1988). During heat treatment, storage and other physical influences, different kinds of acid esters accumulate. These have weaker aroma than esters of fatty acids. But their appearance proves the existence of esterification processes. A comparison of aromas chromatograms of the samples 1 and 2 proves occurrence of changes in concentrations of the individual substances (increasing of peaks length with retention times of 13.10, 100.9; decreasing of peaks length of 54.85 min). An order of peaks exit of different volatiles is given in the Table 2.

**Table 2**

**Exit order of different volatiles**

Exit order, from published data for Carbovax 20 M	Retention time in our experiments, min	Exit order, from published data for Carbovax 20 M	Retention time in our experiments, min
Acet aldehyde	3.8	i-Pentanol	23.56
Ethyl acetate	4.71	i-Amyl butyrate	
Diacetyl	4.82	Acetone	
Methanol	4.91	n-Pentanol	27.92
Ethanol	6.01	i-Amyl valerate	
n-Propanol		Ethyl lactate	
i-Butanol	13.58	Ethyl caprilate	52.6
Butyl acetate	13.59	Acetic acid	
i-Butyl acetate		Diethyl succinate	
Ethyl valerate		Ethyl laurate	
n-Butanol	17.73	Phenyl ethanol	
Amyl acetate	20.70	Diethyl malate	

A comparison of retention times of components with peaks of standard substances of wine aroma indicates that butyl acetate and i-butanol are very close to peak 2. Data on chromatographic separation with mild condition showed that i butanol and butyl acetate peaks exited simultaneously. Organoleptic evaluation recorded a nice smell in the treated wine, thereby due to the formation of butyl acetate. Data indicated the presence of ethyl malate, ethyl tartrate and ethyl citrate in the samples, in addition to two peaks corresponding to ethyllactate and ethyl oxalate. The large experiment error does not allow any inference on changes of their

height after magnetic treatment. Identification of peaks with retention time factor especially in such complex system is not unquestionable. However, the best way is to use the chromato mass spectrometer, which allows inference according to their individual mass-spectrum.

Organoleptic evaluation can depend on aliphatic alcohols content. Determination with GLC shows (Table 3), that their quantity in the both samples is rather small with respect to average values taken from literature for this type of wines. Thus such changes can not be recognized with such evaluation. For both of samples pH was equal to 4.0.

**Table 3**  
**Aliphatic alcohols content, mg/1**

Alcohol	Sample #1			Sample # 2	Average literature values (Kishkovsky 1988)
Methanol					80-350
i-Propanol					0,3-3
n-Propanol	less	than	20		5-50
i-butanol	less	than	20	less than 20	20-100
n-Butanol	less	than	10	less than 10	2-10
i-Pentanol	less	than	20	less than 20	100-250



The results of optical activity measurements indicated, that both samples are not optical active. Filtration, clarification and dilution could not change the optical activity. Perhaps, there is a compensation of different forms of D- and L- compounds in the samples, thus total activity was very close to zero, and magnetic influences could not change equilibrium between the forms.

Organoleptic evaluation of more delicate taste and aroma of the treated sample with respect to non treated one, MBW treated sample as more complete, harmonic, noble, and natural in contrast untreated sample was recorded as excessively bitter and sour in spite of practically the same pH of samples.

It is interesting to test the tendency of wine to make a different kind of turbidity after the MBW treatment. Data showed that both samples were not positive for protein turbidity. In term of reversible colloid turbidity formation, after storage at 7.5°C for 1 day, the MBW treated sample was homogeneous, in contrast to the formation of different phases with different refractometric numbers in untreated sample. Both the phases in untreated sample were liquid, with a density very close to each other, but the borders of phases were like broken lines when crystallization begins in crystallization process. This alteration in untreated sample may be due to micelle state changes or of structurization of product.

The tendency test for polysaccharide turbidity based on the reaction with phenol in presence of  $H_2SO_4$  and determination of the derivative formed by photometrically, indicated, that difference in concentrations of polysaccharide in the both samples are very small, the levels being 119 and 106 mg/l for untreated and treated samples respectively. These values are close to range of polysaccharide stability (150-200 mg/l), and thus do not allow any conclusion on changes of relative stability of the samples. A tendency for polyphenols turbidity, due to polyphenols associates precipitation upon addition of salt did not show differences. Turbidity, as determined in MPL apparatus, was 15 FEM as against value of 0.2 FEM before testing in untreated sample. These numbers were respectively 14 and 0.3 FEM for treated sample. Thus it indicates that both the samples are very stable with respect to polyphenols turbidity and that the magnetic treatment does not lead to alteration in the polyphenols stability.

The data on the colloid stability indicate, that both the samples showed rather high resistance against protein, polysaccharide and polyphenols turbidities. Besides, treated sample showed higher stability with respect to reversible colloid turbidities.

It is interesting to investigate as to how heavy alcohols and aldehydes, which are often produced, when low-grade technology is used, are affected by magnetic treatment. For these studies, a system of simple mixture, consisting only of spirit and water, was used.

Commercial vodka bottled in standard 0.5 l bottles and artificial solutions, containing 40 % of food derived rectified spirit were used. Data showed, that MBW treatment significantly influenced the heavy alcohols content, as the reduction in heavy alcohol was more than two times. In addition, it reduced aldehydes by more than 3 times in vodka, and more than 30 % in rectified spirit. Data indicate that efficiency of aldehydes removal is higher when the sample contained higher level of aldehydes. Thus, the MBW treated vodka and rectified spirit will be better than untreated one. It is however stressed that untreated samples were also recorded as good by sensory panel. So, limits for aldehydes are usually present in high quality vodka established by National Standard (GOST 5363- 67) are 6 - 15 mg/l. Thus the organoleptic evaluation of samples does not allow to find difference in aldehyde levels in these samples.

**Table 4**

**The main results of heavy alcohols and aldehydes determination (mg/l) in vodka and solution, contained 40 % of rectified spirit**

Substance	Non-treated vodka	Treated vodka	Non-treated spirit	Treated spirit
Alcohols	8.7	2.55	3.38	1.5
Aldehydes	1.5	0.4	0.6	0.4

Sediments formation and its character were also evaluated. The sediment in treated grape juice was dense and more dark, the formless, non crystalline sort, and gel like form. The volume of the sediment occupied up to 30% of total volume. The sediment did not sink or float, nor it stick to the walls of glass. It was found that 100 ml of juice gave about 155 mg of dry sediment. Microscopic investigations showed an absence of any kind of bacteria or fungi in the sediments.

The effects of high energy of magnetic influences on sediment were also investigated. The experiments were carried out with "Portwine Erevanski, vol. 0.5 l, white, spirit content 19 vol %, sugar 10 %, prepared according to GOST (National Standard) 7208-84". Crystalline sediment appeared on the walls and especially on the bottom of the bottle after the BMW treatment. An amorphous precipitate was also presented, and it can be separated by decantation. Crystalline sediment, after washing with ethanol and drying to constant weight, weighted 69.2 mg, and was of bright brown colour. A tartrate content as a tartrate acid, of the sediment was 59% mass. If it is considered as a tartar (a wine stone) of potassium sodium tartrate, then tartar content in sediment works out to be 86%. If it is considered as a tartar of dipotassium tartrate, tartar content in sediment will be 93%.

Generalization of data shows the positive effect of magnetic treatment on the wine samples, leading to harmonic taste of treated wine and absence of non

pleasant tastes. Most of the changes were found to be in the flavour and taste components, which were minor substances in the product. For example esters concentration changes during the treatment. At the same time the content of major components, such as sugars, organic acids, particularly, heavy organic acids, and especially ethanol remain constant. It seems logical from kinetic point of view, when simple processes, like esterification, are preferable with respect to many stages reactions, and reactions with high activation energies, which can go at hard conditions. Also, it seems logical that magnetic treatment may influence on electrical state of colloid species. Thus magnetic treatment can be considered as mild, selective in the comparison with many other physical methods. Nevertheless, the changes lead to acceptable energetical and nutritious value of the product. Data show that difficult problems, such as tartar removal, can be solved by MBW treatment.

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# The Fundamentals of the New Principle of Motion

By The Group Studying Inertialess Natural Processes (GSINP)  
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P. Sherbak

The concepts of active and passive interaction between the moving object and the space form the basis of the new principle of motion.

So as to be more understandable, let's consider what is the old principle of motion. For this we will use the concept of a moving object and the space in which the object is moving. Naturally, material objects and the space can't interact between each other directly, because the space is the philosophical category. In this case we can understand physical essence of natural phenomena easily. In our view, the material objects interact with some fundamental energy of space (FAM), which fills all space with a different density. Thus the energy (FAM) is inalienably connected with the space. One of the first names of this energy is "ether" in the early scientific works. So, for the simplicity we will accept that the object and the space interact between each other.

Thus, all existing methods of motion which have been invented by mankind till the present time are based on activity of the material object that means the one expends some energy to produce the motion, and at the same time space is passive, it means that space does not need to spent any energy to move the object. And so in common case space tries to keep the object

in the former state interfering with accelerated movements of the object (in accordance with **the 1<sup>st</sup>, the 2<sup>nd</sup> and the 3<sup>rd</sup> Newton's laws**).

It should be noticed that such method of motion (for the speed, which is much less than the speed of light) takes place both in animate and inanimate natures. In this case the level of energy of motion and reaction of space (or an environment) are not very high. Incidentally, the energy of object can be of different types: electrical, chemical, biochemical, mechanical etc. The common consequence of this type of motion is existence of the **inertia**. The classical physics can't answer the question: "what is inertia?" The same situation is applied to the concept of **mass**, which is closely connected with inertia. The classical physics says that **the mass is a measure of inertia**.

There is the new principle of motion of material object: the object is passive and space is active. In this case it's more favorably for space in the energy aspect to move the passive object and to spent some power then to keep the object in the present place in the former state of immobility (in accordance with **the 1<sup>st</sup>, the 2<sup>nd</sup> and the 3<sup>rd</sup> Newton's laws**). And so we should introduce **the 4<sup>th</sup> law of Newton's mechanics**. It says that **there are the systems of coordinates in which the body is moving not rectilinearly with acceleration when this body is in the state of immobility**.

The basic and the main differences of the offered principle of motion from the existing methods at the end of the XX century are the following:

- 1) **The absence of inertia of motion;**
- 2) **There are no limits for the speed of motion;**
- 3) **The absence of "fuel reserves" "on board" of the moving material object.**

# Nikola Tesla and Instantaneous Electric Communication

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Nikola Tesla (1856-1943), an outstanding inventor, was and still remains one of the most mysterious persons in the history of electrophysics. Whereas the most scientists were moving together in direction of microparticles investigations, as the basis of matter structure and of nature itself, he was going in opposite direction. He had a keen interest in the investigation of electric charge of the Earth as a whole. He was looking for the ways to influence on it, to control its state and methods of its regulation.

Therefore, exactly, the most of his searches, experiments, the purpose of constructions and buildings, created according to his conceptions, cause perplexity and misunderstanding of scientists even in nowadays.

The most mysterious of his main experiments were made in USA after 1904. After Nikola Tesla death in 1943, all his diaries and records over a period from 1904 year had mysteriously disappeared. Probably they were stolen (it was known, what to take). Lost records could "cast light" on one of the most "strange" of his buildings in the form of the enough tall tower, on the top of which a specially created toroidal transformer was placed. This transformer could create there a huge electric potential up to the billion volts.

Nikola Tesla switched on this tower-device, what caused the fright and even panic in mind of people from nearby settlements. Of course! Because of very high electric potential there began air ionization, which spread very high to the atmosphere accompanying by the effect of color play. Such luminous, color-playing sky caused even a horror of people, who knew nothing about the experiment made and its goals. They did not guess that Tesla by means of the electric charge, created of the tower, was influencing on the electric charge of the Earth as a whole (about 600000 Coulomb). There was a global scale in Nikola Tesla's investigations.

There is no point in detailed analysis of the fact that the potential of the tower top influenced on the Earth charge. Interaction of charges-balls with the distortion of field lines, distortion-distribution of charge on their surfaces, induced charge, is beautifully described even in school physics textbooks. In Nikola Tesla investigations the

Earth had the role of one of the charged balls. It was possible by changing of charge on the tower to deform electric charge distribution on the whole Earth surface at once. This deformation (electric currents) could be fixed at once in every point of the Earth surface. It is alluring to use this effect for data transfer telecommunication, both on the Earth, and in space.

After such introduction the question "How does the system of instantaneous electric communication for any distance look like and work?" is still opened. First of all, the readers need to know, that such instantaneous communication is possible in principle. The proving it theoretical calculations, are rather difficult for popular interpretation. Some part of readers can take it on trust, and those who are most interested in can apply to works of Oleinik V.P. (quantum physics) the professor from Kiev Polytechnic University. At the minimum there are two necessary works: Oleinik V.P. "Faster-than-light transfer of a signal in electrodynamics. Instantaneous action-at-a-distance in modern physics" (Nova Science Publishers. Inc. New York. 1999) and Oleinik V.P. "Latest development of quantum electrodynamics: self-organizing electron, faster-than-light signals, dynamical heterogeneity of time." (Physical vacuum and nature. 4. 3-17. 2000).

"PC" magazine has devoted a rather significant article entitled "Computers and teleportation" to V.P. Oleinik works, concerning instantaneous electric communication ("PC" #6, 2000). Note, that the author of the given article has also found the possibility of instantaneous electric communication, but by means of materialistic methods, absolutely different from Oleinik's ones, what is most important – two different solutions point to the possibility of this communication. "PC" #6, 2000 in the article "Circles on fields" cited mathematical formulae of the structure of electron electro-magnetic field as an illustration (it refers to the Earth too) that the author of this article has got.

The most attentive readers of that article could notice, that one vector Hz absolutely "ignores" Special Theory of Relativity, since its mathematical expression does not include the velocity of light, whereas it presents in other vectors as a product of electric and magnetic conductivity. Magnetic line of this Hz vector goes to infinity and returns back from infinity. It surrounds the whole Universe. It is alluring to use exactly this (Hz) line for the **instantaneous** communication for any distance.

It is not so difficult to do it. In the Fig. 1 the easiest and most available for understanding line of the **instantaneous** electric communication is shown. A rotating charged dielectric ball (an "electron", isn't it?) is used as transmitter. The ball can be electrically charged up to the limit of charge flow-out into the ambient space. Around the charged rotating ball there appears electro-magnetic field, entirely analogous to the electro-magnetic field of the Earth (and of the electron too). The central magnetic line Hz goes to the infinity and returns

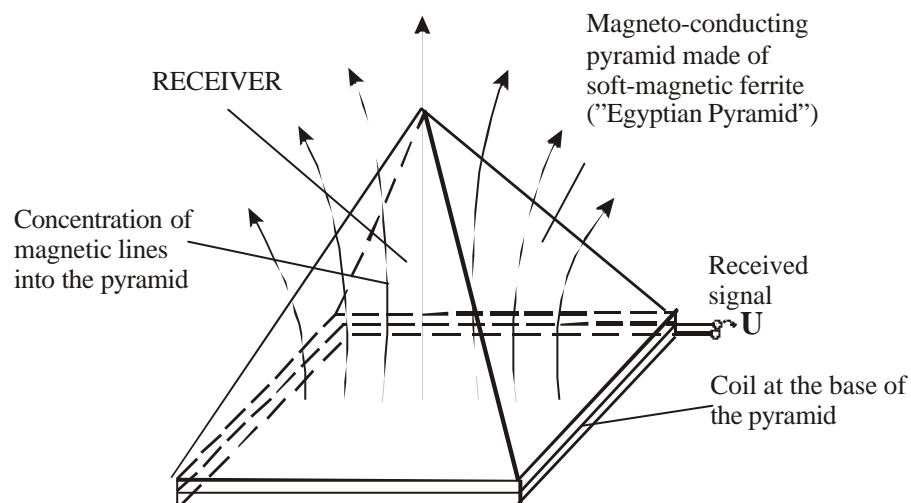
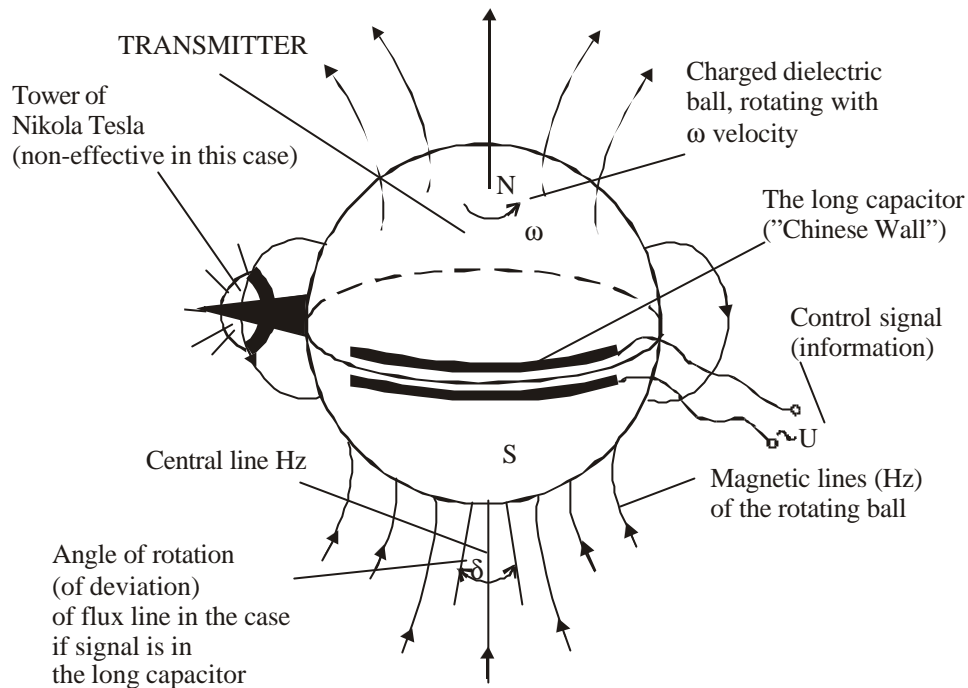


Fig.1

**Line of the instantaneous electric communication on the basis of rotating charged ball and pyramid**

back from it to the opposite side of the ball. In the same way the central magnetic line of the Earth (Hz) goes from one pole to the infinity through the whole Universe and returns from it to the center of the opposite pole.

If by the information to force the rotating ball (electron) to "wag by tail" (by Hz vector) which stretches through the whole Universe, then this "wagging" can be controlled instantly in every point of the Universe. While the rotating ball has a steady distribution of the surface charge, the line Hz does not change its dynamic position in the Universe.

If such distribution of the surface charge is broken, space position of the line Hz also will change. On mounting the Tower of Nikola Tesla on the surface of rotating ball and measuring the potential on this tower in time with an information it is possible to change the charge distribution on the ball, and, respectively, the space position of central magnetic line (Hz) in the whole Universe at once. Big disadvantage of the Tesla tower is that maximum influence on charge is executed in the point under the tower, and farther it began decreasing roughly (exponentially), according to physics laws.

Hence it is advisable to influence on the whole surface of charged ball, but not on some point of it. It is possible to influence at once on the very big part of surface by the long capacitor, placed on the perimeter (equator) of the charged rotating ball. Because of optimality reasons, this capacitor length should not exceed a quarter of the ball perimeter (equator) length. Charging and discharging this long capacitor on the ball equator by the data signal, only the position (angle  $\varphi$ ) will be changed, not a value of the infinitely long magnetic line (Hz) in the Universe. It is a data transfer.

The natural question appears: "How to make on the Earth the most powerful transmitter for the **instantaneous** electric communication?" The answer suggests itself: "It is necessary to use the Earth itself as a rotating charged ball." It is not effective to use Nikola Tesla's Tower to deform the Earth electric charge. To place on the Earth very long (about thousands km) capacitor is quite easier. However, it must be placed not on the equator exactly, but moved a little bit because of the initial heterogeneity of the Earth surface charge distribution, caused by the presence of continents and oceans. It will be necessary to find the line of electric equator, where the amount of charge north and south of it is similar. This line will not be ideally straight and will be situated near the 30<sup>th</sup> parallel.

As a matter of fact, this grand capacitor is already built, but is half-broken. This capacitor is very well known – it is a Great Chinese Wall. The ancient, powerful Chinese Tzcin' Shi Huandi empire adapted and used it (capacitor) for the protection from nomads incursions. How unexpectedly and originally it is! In this case the electric iron would be the best tool for spiking. It is clear enough that the charged ball (as well as the Earth) will "wag by tail", which stretches through the whole Universe and does not change its energy, but only changes its position in space in time with information. Now we can go on to the question, concerning the way to control the Earth "wagging by tail" in the Universe, and thus to read information **instantaneously** in any point of the Universe.

In the Fig. 1 it is shown the input device of the electric communication receiver, made of the magnet sensitive material (it can be soft-magnetic ferrite) in the form of pyramid, with the proportions of well-known Egypt pyramids. Magnetic field lines of the far space pass through the pyramid from the top to the base and are concentrated by pyramid. If there is no signal (the "wagging by tail" of the far planet-transmitter is absent), then the magnetic flow, coming through the pyramid, does not change, and induced voltage in the coil, placed in the base of the pyramid, is absent (no information). If "wagging by tail" begins, then the magnetic flow, coming through the pyramid, will change, and it will cause the appearance of voltage on the coil in the base of the pyramid in time with the information.

Thus, the signal is received instantly. Here it is necessary to remind once again the difference between the

instantaneous and usual radio transmission. The usual radio transmitter for the transmission of the information uses the **energy** distortion of space by the information. This energy change in space happens with the velocity of light and hence there is the loss of time for information passing. In the considered case there is no **energy** change in space, there is only a change of magnetic lines position (Hz).

This is exactly the vivid and fundamental difference between the usual electric communication and the instantaneous one. **In other words, in usual transmitter during the fixed time interval there is the change of signal energy (instantaneous value), whereas in instantaneous transmitter there is no this change (only information). This is exactly the fundamental difference.**

Evidently, to receive instantly the signal from the opposite part of our Galaxy, we need rather big pyramid, in order to concentrate a big amount of field lines into the oscillatory circuit under the pyramid. The question can appear: why the pyramid, why not a cone? The point is that lines of the Earth magnetic field (the very lines that compass needle reacts on) in the any place of the pyramid horizontal section have the same density of distribution and are directed strictly parallel to the pyramid base. The cone in its horizontal section cannot provide such uniformity of distribution that is why it is not advisable to use it. From the space magnetic field lines pass through and concentrate in the pyramid strictly at right angle to the pyramid base.

This is the riddle of pyramids wonderwork. Any person coming into a pyramid, at the same moment feels the change of mental and physical condition of organism; which is very different from that it was before the entering into a pyramid. Of course! Visitors come inside, into concentrated magnetic field lines of the powerful and functioning magnetic core of the receiving electric circuit, what is absent outside the pyramid.

It is strange, but most of tourists are afraid of the ill effect, which can be produced by electrical systems on their health, but there they stand in a queue to feel this effect in pyramids. Concentration and division of magnetic field lines are the easy and effective way to reject a noise, created by the Earth magnetic field.

It is clear, pyramids should be oriented very thoroughly, so that lines of the Earth magnetic field would be strictly parallel to the base and to the opposite (East-West) sides of pyramid. To get such exactness of orientation in modern conditions is very problematically.

The most convenient place to build a pyramid (pyramids) is on the electric equator, in the place of its intersection with the electric meridian. Such place is located in Egypt, near its capital Cairo. And again we meet a paradox: such pyramids are already built on the Earth, but they are half-

broken. And Egypt was not less powerful than the ancient Chinese empire.

The Egyptian dynasty of Pharaohs has “completed” and adapted pyramids to burial-vaults, where mummies of dead Pharaohs were buried. Perhaps, it is even more incredible than in China. The impression is given that ancient powerful civilizations on the Earth had a competition between themselves, who will use radio-engineering constructions for instantaneous galactic communication in the most incredible way. Let’s give to a reader an opportunity to select a “winner”.

It must be noted that «PC» already published information that the Chinese Wall and Egyptian Pyramids are radio engineering constructions, intended for the instantaneous galactic communication (PC #114, 1997, etc).

There appears an interest in the possibility to produce very simple and manufacturable systems of instantaneous electric communication right now. Radio-electronic industry can produce them, but still does not guess about it.

Furthermore, such systems of instantaneous electric communication can be created at home, and even senior

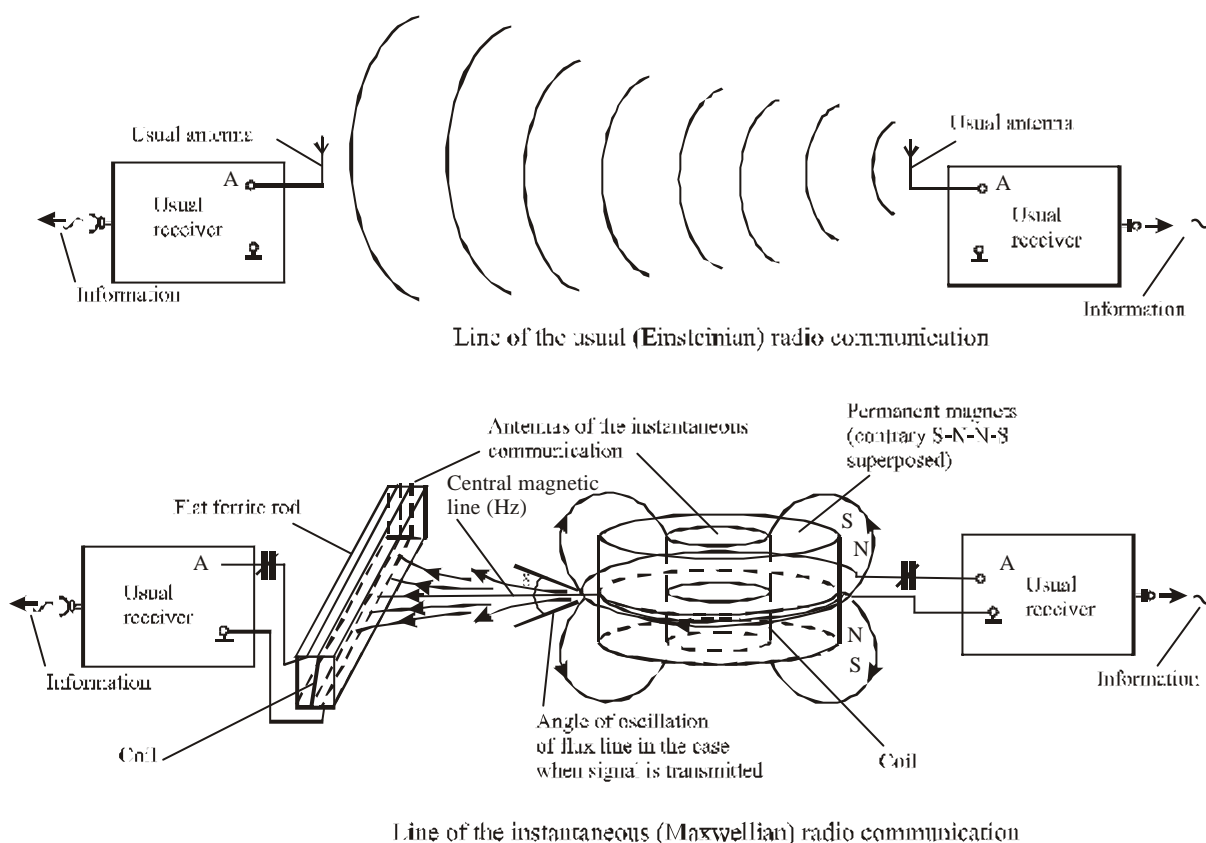


Fig. 2

### Transformation of the usual line of communication of usual receiver-transmitter into the instantaneous one

pupils are capable to use them. In the Fig. 2 there is shown the construction of instantaneous electric communication line in comparison with the usual one. It can be produced even at home conditions. Two permanent magnets, connected between each other by analogous poles, are used as transmitting circuits.

Permanent magnets can be replaced by electromagnets. In the magnet connection point there is a coil, which while the signal passing through it will change its position (angle  $\theta$ ) in the space of the central magnetic line (Hz), coming out from the place of two magnets connection. Receiving circuit is available to be made of the flat ferrite, but coil

must be wound along, through butt-ends of core, so that the whole internal part of the coil would be maximal (in area extent) filled by ferrite.

The obtained coil can be completely “winded” (screened) by flat ferrite of big size. For more clearness of the experiment the central magnet line of transmitting part must be directed strictly along the axis of the receiving coil.

Now, if we give the alternating voltage (information) from transmitter to the transmitting coil, fixed on the permanent magnet, then the receiver, connected to the circuit of the

transmitting coil, placed on the flat ferrite, will detect an alternating voltage (information). Maximum effect is achieved at the resonance (coincidence of transmitter and receiver frequencies).

It is checked. It works. The dullest experts in radio-electronic (after the reading above) can rejoin, without making an experiment, that it is an absolute nonsense that any communication is out of the question. Coils with absolutely perpendicular axes, besides one of them is screened, do not interact with each other.

And here the most interesting thing starts. In the Fig.2 as it was mentioned above, the usual communication line and the instantaneous one were compared. The usual transmitter cannot generate the vector Hz that is why systems of usual and instantaneous communication cannot see each other in strict sense. What does it mean? It means, that in the same city it is possible to transmit on the one-carrier frequency ("what a nightmare!") two absolutely different television channels without any noises of one to another.

Usually by frequency match of a transmitter to the working frequency of another one, the radio communication is broken, but here it does not happen. Here some additional explanation should be given. As the vector Hz, which "ignores" the theory of Einstein is received from Maxwell equations, it follows that the usual (Einsteinian) system and the instantaneous (Maxwellian) one work on mutually perpendicular electromagnetic field lines (vectors).

In the Fig. 2 such difference is shown clearly. These are just "jokes" of complex numbers, when one value is absolutely perpendicular to another and nevertheless together they form a single whole. In other words it means, that two greatest persons in science Einstein and Maxwell as a matter of fact are something like "Siamese twins", completely grown together at the angle of 90 degrees, even by heads. On the one hand every one is on his own, but nevertheless they are the common (complex) organisms.

Hence there are a lot of misunderstandings on happened phenomena. How many scientists tried to find some mistakes of Einstein? They produced very convincing proofs concerning instantaneous interactions in nature. These scientists did not suspect that time and still do not guess now that they already for a long time are "walking" in the complex physics, which still does not exist. Einstein and Maxwell ("Siamese twins"), each occupies his own part of the complex number (complex physics) and they cannot be already taken off from there.

The only third, free "vacancy" is left to throw on the both of them at once the common "collar" and "reins", i.e. to fasten them ("twins") together by module and argument as any complex number. In this case no matter how the one part of complex number "ignore" the other one, only its argument will change, and module always will be equal

to the conditional unit. Only this single fact in principle changes the conception about "appearance" and "disappearance" of elementary particles! Even considered instantaneous and usual communications on the same receivers and transmitters in a complex conception (complex physics) eliminate appeared "misunderstandings" of all kinds.

Advantages of the instantaneous (Maxwellian) electric communication are especially evident during the connection with long-distance spacecraft. At present in the interval between sending of control signal to the station in region of Solar System peripheral planets and getting the reply it is possible to have a small break for dinner (it is very convenient).

In the case of the instantaneous electric communication use, duty operators will have "no dinner". Moreover, the system of instantaneous electric communication can realize two-way communication underwater and from underwater to overland. It is clear that input and output circuits of such system must be covered by slushing composite for the protection from aggressive effect of the salt sea-water. Such systems of instantaneous communication are very required to submarines.

Now, when readers know and understand the principle of operation of instantaneous (Maxwellian) electric communication systems and their advantages over usual ones (Einsteinian), we can only wait, when radio-electronic industry will start to produce these very required systems.

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# The Unified Gravitation Theory

(The unified super-principle,  
which controls the Universe)

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(Editor's comments by Alexander V. Frolov)

A forum of the leading USA physicians took place in the White House in March 1998 in presence of President Clinton. There was only one question: "When will the nature of Gravitation be opened?"

The well-known USA physician-astrologer S. Hoking declared that it possibly would occur in twenty years and it would be **the Unified Theory of All**. So, the scientific world by default called it the greatest discovery of the future.

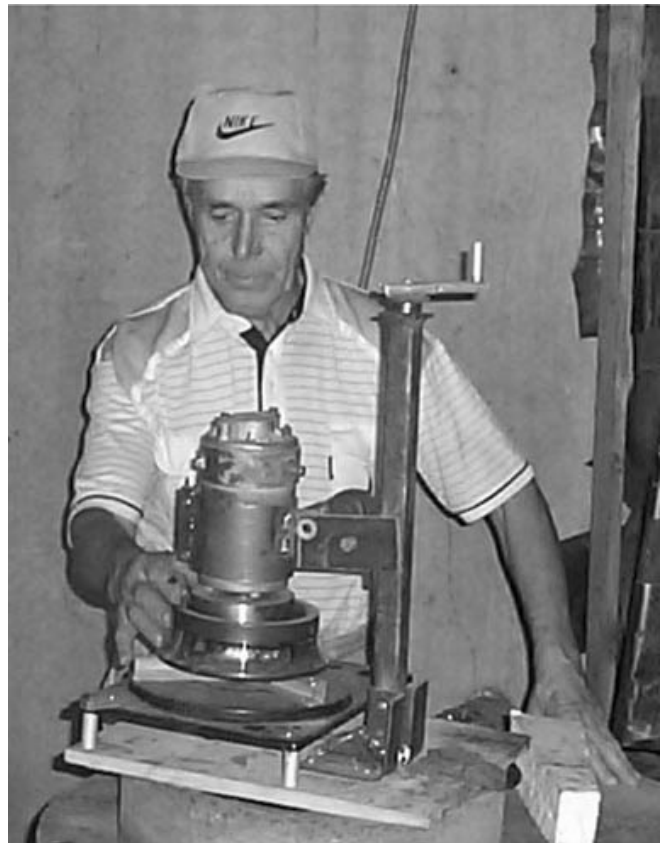
Some time later a new hypothesis pretending to this discovery has got its birth in Orenburg. Despite this fact this hypothesis would gain recognition and status of the **Greatest Discovery of Mankind** only by 2018 that was predicted by S. Hoking.

To present day there have been written a lot of hypotheses on this problem but they haven't been recognized. Many scientists consider our Universe as living and functioning according to the unified and rigid laws in Macro and Microworld, which provides automatic regulations of all its processes due to **circulation of radiant energy of the Universe life in cosmic space**. This energy is inexhaustible and environmentally clean, and Mankind may learn using it in the nearest time for the welfare and for prevention of **contradirectional irreversible ecological** catastrophe.

There is no alternative for humankind to escape and it will not appear in the future. Only cosmic energy will save us. From the book "Secret Doctrine" by E.P. Blavatskaya we can get complete information about the fact that a highly developed civilization of Atlases on the Earth had a **"General Theory of All"** yet 10-12 thousand years before our civilization. They had no automobiles, but instead they had flying objects (aircrafts) "Vimana" of various types as well as ships and submarines, on which they also used **Cosmic energy**.

While reading an abstract in General Soviet Encyclopedia, I got acquainted with the theory of "Aether wind", which was abolished in the beginning of the XX century, and then I understood that this theory contains a deposit to discover the nature of gravitation.

**The nature of gravitation is the only one and there are no alternatives in theoretical as well as in physical sense.** When scientific world of entire planet abolished the theory of "Aether wind", it lost the possibility to



discover the nature of gravitation. The XX century was marked by a revolutionary development of scientific and technical progress, but there was an almost 100-year stagnation in cognition of the Universe elements.

The theory of "Aether wind" supposed that all Cosmos is filled with aether particles flying with the speed of light (these particles are "neutrino" according to modern understanding). **The role of gravitation, carrier of light and retarding medium in Cosmos** was attributed to this motion of particles.

But this theory allowed chaotic motion of particles, which is impossible in mechanism of the Universe, which is adjusted up to automatic mode. Besides, motion of these particles is not possible without an absolute buffer unit, which prevents their head-on collision at the speed of 600000 km/sec (it is thermonuclear explosion and death of matter, i.e. the Universe). E.P. Blavatskaya wrote that Cosmos is filled with radiant energy of the Universe life, luminophore, electromagnetic aether. Thereby she predicted a ready solution to make correction in the uncompleted theory of "aether wind". On the basis of above stated and due to the **un-assumed dawning up**, the theory of "aether wind" was completed. It was the ground to develop a hypothesis of radiant "aether wind". Particles of this wind (neutrino) are electromagnetic particles and move with the speed of light in all directions as **contradirectional paired single-stream flows** (like electrical current in twin-wire cable). Due to this, an absolutely stable concentration of these beams in cosmic space is provided according to the principle "what has come in, the same has gone out".

The hypothesis formulates new views on the problem of structure of elements of the Universe material world.

Some separate conclusions do not match the views of modern scientific thought on the problems of physical principles of material world structure and functioning of the Solar system.

#### List of topics of the hypothesis

1. The hypothesis discloses the operating environment of a super-mechanism, which controls the Universe (it is a radiant "aether wind").

2. It discloses the nature of retarding mechanism of flying objects in Cosmos (its name is Lorenz-Fitzgerald compression).

3. It proves the absence of Universal gravity and beams of light as we usually conceive it. (The beams of aether wind collide and compress matter. An alternative to the notion about beams of light is a temperature wave impulse on the beam of aether wind. It explains why the speed of light doesn't depend on the speed of the source of light. Light is a "passenger" on the beam of "aether wind").

4. This hypothesis discloses the mechanism of stabilization of rotary and orbital movement of the Universe matter in macro- and micro world due to retarding medium in Cosmos.

5. It discloses the mechanism of reverse rotation of Venus due to the forces of autorotation.

6. It discloses the mechanism of reverse orbital movement of planets and satellites of planets. (Such a planet had not been opened yet, but there are 6 satellites in the Solar system, which move counter to the others, and it is not an occasion, but **a particular case of the effect of aether wind beams**).

7. It discloses a real nature of Tunguska catastrophe. (There were about 100 hypotheses, but **neither of them** was recognized to be true).

8. It discloses **the nature of gravitation** and gives an explanation that gravitation can be:

- usual (vertical);
- horizontal;
- circular

**It is important to note: not the entire matter takes part in gravitation, but 1/3, i.e. 33,3% of matter.**

9. It discloses the **nature of Levitation** and proves that 1 liter of water on the surface of the Earth can have the weight from 0 up to 3 kg.

10. It discloses the **role of gyroscope effect in life support of the Universe. The gyroscope effect allows transformation of translation energy of radiant "aether wind" to the rotational energy for practical needs of humankind.**

11. This hypothesis gives scientific and technical recommendation for creation of cosmic energy converters.

12. It gives scientific and technical recommendation for producing of levitation effects for any technical systems.

13. It discloses the possibility of cosmic flights with the super-light speed.

14. It explains experiments on metering of horizontal gravitation (The first experiment was made on February 27, 1999).

15. It discloses the particle (neutrino) of original matter of the Universe and gives its characteristic. (Ancient thinkers called modern "neutrino" as "Aether", and it was not occasionally, because its diameter is in  $10^{25}$  times smaller than atom's diameter.

All matter of the Universe consists of the same indivisible particles "neutrino" presented by three groups:

- "energy" group, which is in the beams of "aether wind";
- building group, which forms the part of any micro particle;
- free group (neutral-reserve) as a building material for new matter and operating environment of all electromagnetic processes.

All neutrino of three groups rotate with the speed of  $3 \times 10^{43}$  rps (equatorial speed of neutrino is equal to the speed of light).

Fields are formed in every particle as a result of rotation:

- strong field of a small volume doesn't allow particles to close up;
- weak field of a big volume is a general mechanism of gravitation.

As scientists write at the present time, the World is subdivided on a dense world (which we can see) and fine world (invisible). At that the density of such world is in  $10^{15}$  times less than density of water.

It is known in science that all matter of the Universe both great and small rotates and is a gyroscope. Particles of matter get rotation with their birth, thus the fields are born in them simultaneously. **Matter cannot exist without rotation, which generates fields.**

All mechanism of interaction between three groups of particles is based on the mutual repulsion. This is the only mechanism, which always and automatically is able to create the necessary stable interval between the particles and only this mechanism provides the function of gravitation.

Many scientists of the late XX came close to the discovery of the nature of gravitation, but they didn't accept a thought to conceive **the motion of aether particles as a pair-counter flow**. And there are three necessary conditions to realize gravitation:

1. The particles should have the fields of repulsion.
2. The contradirectional flows should envelop the particle of matter from two sides.
3. While one beam is passing a matter mass then the force of fields should decrease and gravitation effect should appear.

### Mechanism of gravitation

Gravitation appears due to the intersection (*Editor's note: interference*) of fields, produced by beams particles and fields of the visual matter. As it was mentioned above, the beams are paired and contradirectional. Usually the beams in cosmos are mutually balanced and they do not call gravitation effects.

But on the surface of the Earth the contradirectional beams are not similar in their power. The powerful beams come from above, i.e. they only penetrate the atmosphere, and the weakened beams come from below, i.e. they penetrated all the Earth. Thus, gravitation appears.

**Gravitation** is a unique property of "aether wind" beams to loose part of their power during penetrating of matter mass. **Gravitation** is the difference of forces of contradirectional beams. (*Editor's note: Really other authors reported this idea also. I cannot find who was the first in discussion about gradient of aether as nature of gravitation.*)

### Horizontal gravitation

As a particular case, there is **horizontal** gravitation on the surface of the Earth. It appears on the boundary between lowland (of the sea) and plateau. In this case one beam goes above the surface of the Earth (water), and the counter beam penetrates mountain range and



weakens. The first measurements of horizontal gravitation effect were made on February 27, 1999 on the route Orenburg – Samara at 49 km before Syrtinskiy slope.

A leaden load (0,5 kg) on the float (a piece of foam plastic) moved on the water surface (not in the sea but in basin) towards the mountain.

Horizontal gravitation is much more weaker than usual gravitation, but it can reach the value that makes water to flow at some angle upwards.

### Circular gravitation

**Only fast-rotating bodies can create circular gravitation.**

All bodies rotate by their orbits around the Sun in the open space of Solar system **due to circular gravitation guided by rotating the Sun**. Furthermore; circular gravitation always is direct (co-directional to the Sun rotation) and reversed gravitation on the periphery of Solar system. A planet with reverse orbital movement had not been discovered until now, but 6 satellites of planets in the Solar system have reversed orbital movement.

Here is the proof of the fact that circular gravitation appears only around the fast-rotating bodies and **slow-rotating bodies, for example, the planets Venus and Mercury cannot form circular gravitation**, that's why they have no satellites.

**Our Sun is a prototype of mechanism to transform translation energy of aether wind beams into rotary energy.**

(*Editor's note: According to Kozyrev, any star is a transformer of time (chronal type of energy) into heat energy. Really, the aether wind can be considered as the chronal type of energy in our understanding and for our usual three-dimensional measurement equipment. To my mind it is a clear link to notion of 4-dimensionsal objects, i.e. the time. Time can be described by parameters of the aether wind, i.e. its velocity, direction and density. So, we can say that quantitatively time can be described by formulations for kinetic energy of the aether movement. From the other hand it is equivalent of heat energy, which can be measured by usual methods after transformation of the longitudinal waves of the aether in transverse electromagnetic waves).*)

Therefore, any mechanical disk rotating very fast will create a circular gravitational field, which is able to rotate all bodies in the direction of the disk (for example, a rim mounted on its bearing co-axially with rotating gyroscope). I designed and tested a similar device in January 2000. A gyroscope (of 200 mm diameter and 3 mm thick) was over-speeded up to 18 thousand rpm. Rotation of gyroscope called slow (but with a good momentum) rotation of the rim of 15 kg weight.

The gyroscopes with the mass of 0,5 kg, 15 kg and 90 kg were tested during summer of 2001. All them called rotation of the rims.

(*Editor's note: There are other experimental facts. Fast rotation of mass should produce rotation of some part of nearby aether. Self-closed aether forms vortex and if photon is trapped by this vortex, then*

*experimenters can see “ring of light” near rotating mass. The rings or self-closed photos can exist in the same place after the mass was stopped or removed away.)*

Nowadays gyroscopes in military devices are over-speeded up to hundreds of thousands of rpm. The more rates the gyroscope has, the more energy the rim will produce if it is connected to some generator. But these research works led to single-valued conclusions that gyroscopes themselves cannot produce big quantity of additional cosmic energy not jointly with permanent electromagnets. The Sun as well as planets has natural electromagnetism and their circular gravitation increases in many times due to the presence of electromagnetic fields.

***(Editor's note: I think it is obviously that a rotating magnet can involve into the rotation much more quantity of aether than any simple rotating mass. In some theories any magnetic field is considered as circulation of aether particles.)***

Electromagnetic fields are the unique boosters of circular gravitation. So, the gyroscopes themselves cannot produce necessary quantity of cosmic energy per unit mass of gyroscope without using of electromagnetism.

In October 2001, I got a copy of 24 patents description. There were patents on “perpetual motion machines”. But since such “perpetual motion machines” cannot exist in reality, then we can explain them as gyroscopical transformers of cosmic energy. Efficiency of these transformers varies from 150% up to 10<sup>6</sup>% and practically all of them work using gyroscope. But nowadays only the transformer (Bauman's machine) works in Switzerland, in Maethernitha theological community, Linden city. Some systems have been working from 1980 and producing total power of 750 kWtt, the gyroscopes of 2m diameters are provided with constant magnets.

Besides, there are ready transformers of cosmic energy in Russia. The Professor of Moscow State University, Academician of Russian Academy of Natural Science Leonid Leskov spoke about them in the first half of 2001. He actually said that Mr. Chubais does not allow innovation of energy transformers, which are ready for commercialization (see newspaper “Raduga”, Samara, July 2001).

I assume that any kinds of such transformers work on the energy produced by “Aether wind” beams. Perhaps our earth ancestry (Atlases) used this energy to fly as well as extraterrestrials. I remember information about flying platforms, which were designed in Germany in 1943-1945. Nowadays there are publications that there are not less than 10 captured extraterrestrial's spacecrafts on the Earth, and some samples were tested in Russia and the USA.

On the basis of all above-mentioned it becomes extremely clear that the main secret of Nature was discovered, and let's representatives of conservative science don't pull the wool over people's eyes to prove that “it is impossible”. It is possible! Physics is an experimental science in its main part, and there is no completed theory until now.

As a result, I'd like to make some conclusions: The secret of Gravitation nature was discovered not in connection with new scientific investigation, but due to dawning up and understanding of the fact that gravitation since earliest times was produced by “Aether winds”, which fill all cosmic space. Instead of improvement of “Aether wind” theory, academician science abolished it and forgot it such as some scientists of nowadays don't have an idea of it. While abolishing of “Aether wind” theory, scientific world spent 100 years in vain to find an alternative to it. A real Cosmic scientific and technical progress was slowed down during this term. Without this progress all humankind will kill environment of the Earth in 30-40 years!

Rush hours for humankind to turn to cosmic energy came, we have not even an hour to wait, and otherwise we will loose a chance to survive. Today the scientific and technical level is such that taking into consideration the buildup made by inventors – enthusiasts, who created more than 50 types of Cosmic energy transformers, it is possible to begin repetition work in one year. Now there is the only barrier to do it, i.e. market relations in energetics developed during last 100 years.

Let's look into near Future. The process of energy resources (coal, oil, gas) formation in bowels of the Earth took hundreds million years. There was period of clean ecology in the World Ocean, on land and in the atmosphere. **And all it catastrophically had been diminishing during 2-nd half of the XX century. There are about 40 years for our civilization to reach the boundary of having no chance to support normal life on the Earth.** An irreversible process of struggle for survival using underground environment and protection from mortal ecology will begin. Our close posterity will not forgive us this betrayal.

***Is there any solution? Yes, there is.***

**It is necessary to publish the descriptions of all “perpetual motion machines” models as well as unprofitable publication of short technical documentation in the Internet and magazines, which will give a chance to many companies, research groups and individuals to re-produce them.** But at first we should choose the models, which are the most reasonable in technology and prime cost. Such a way of replication of the models will give people confidence, interest and reliable information on existence of inexhaustible salutary cosmic energy. And the victory will be the reward for courageous, enterprising and advanced people.

which generates electrical voltage  $E_{\uparrow} = \ell \frac{dB_{rot}}{dt}$  in the structure of vacuum. This voltage generates Gravitational Impulse itself  $G = 4\pi E_{\sigma} S \cdot (\Delta r_g)^2$ , where  $\Delta r_g = e_0 \frac{E_{\uparrow}}{b}$ .

**The supposed "Gravitational Impulse" in the experiment by Podkletnov is modeled by a quarter of cosine curve.**

Duration of this curve is determined by the decrease of magnetic field "trapped" into the superconductor due to the partial heating of semi-conductor emitter after plasma passed the discharge of 2MV with the current strength of 10000 A. The formula of the model is the following:

$$X'' = Ae^{-2\pi f_0 D_0 t} \cos(2\pi f_0 \sqrt{1 - D_0^2} t) \quad (1)$$

the calculation is made for the frequencies of 30, 3, 0,3 and 0,03 Hz and acceleration of 12 m/sec<sup>2</sup>, which appears for the mass of the pendulum 30 g with the force horizontally to gravitation 0,03·12=0,36 N.

It can be supposed that it is necessary to make more careful solution of the problem to find the effect on the pendulum by its reaction, which is known from experiment. We should apply the more correct use of spectral method of solution of differential equation for the pendulum with setting of impulse effect. Further, having the recording of temporal function of magnetic field by Hall-effect devices and using Maxwell formulas,

we should find electrical field acting in physical vacuum. This field will give us the force of gravitational impulse.

*The experiment by V. Roshchin and S. Godin is simpler for physical modeling (Editor's note: the author assumes it is simpler than Podkletnov's effect). All input and output parameters are known to the authors, i.e. force of the magnets, frequency of variable magnetic field in the local place of space vacuum, change of gravity. Furthermore, there are known cylindrical formations of magnetic "loops" around the device and their approximate arrangement with the intervals divisible by the half of rotor radius. Effects of temperature decrease at 8° C in cylindrical atmospheric formations can be simply explained by adiabatic decrease of air pressure due to the decrease of gravitation between molecules of air. Formulas for estimation of decrease of gravitational and inertial forces are the same that for Podkletnov's experiment:*

$$E_{\uparrow} = \ell \frac{dB_{rot}}{dt}, \quad (2)$$

$$G = 4\pi E_{\sigma} S \cdot (\Delta r_g)^2, \text{ where } \Delta r_g = e_0 \frac{E_{\uparrow}}{b}. \quad (3)$$

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# New Sources of Energy from the Point of View of Unitary Quantum Theory

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## Abstract

The Unitary Quantum Theory (UQT) is a new version of the field quantum theory, which has been developed by the principal author (Prof. L.Sapogin) of this paper

for over 25 years. The theory is directly related to the problem of new energy sources, and this paper can be of interest for Journal of New Energy for it is the UQT (and not the classical Newton mechanics or the modern standard quantum mechanics) that provides a theoretical basis for the development of new sources of energy and for the explanation of the operation principles of the existing and functioning over unity devices.

The fundamental provisions of the UQT and a number of results received on the basis of it were published in many scientific journals and reported at international conferences (see [1-6], etc.). Generally, the UQT as expressed by the language of formulae and equations represents a new mathematical model of interaction and movement of elementary particles in the form of a complicated system of non-linear integral-differential equations, an important property of this model principally defines the trajectories and velocities of the particle movement in space (unlike the standard quantum theory, which directly defines only the probabilities of the presence of the particles at a certain point in space). Another, and the most essential (for the problem of new energy sources) property of the UQT is the absence of the energy conservation laws and the

impulse for single particles in it. That is why the UQT makes theoretically possible processes of energy generation as if from nothing, if they are regarded from the classical mechanics point of view or the standard quantum theory (while the UQT is able to explain the phenomenon), as well as creation of a device with efficiency above 1. In other words, the UQT provides for a theoretic possibility of making a perpetual mobile!

In the 1970's, when the UQT started to be developed, there was nearly no data of the observed phenomena, or any experimental results confirming this unusual theory. Today, such data are abundant. For example, such processes can be named as generation of excessive heat energy during cavitation of very small water bubbles; generation of excessive electric energy in an anomalous gas discharge; excess generation of electric energy when electric current passes through proton-conducting ceramics, etc. Besides, and still more important, operating devices that have been created much more energy than it was necessary for these devices functioning: electric current generators "Testatica" (Switzerland); thermal cell CETI (J.Patterson, USA); heat generators (Yu.S. Potapov, Moldavia, J.Griggs, USA); electric current generators (P.Correa, A.Correa, Canada); electric engines on magnetic ceramics (Japan), and others. The said phenomena and operation principles of the above-mentioned devices can be explained with the help of the UQT.

In this paper we will also touch upon such an important problem as cold nuclear fusion. The feasibility of this nuclear process, which is categorically denied by the standard quantum theory and nuclear physics specialists, was predicted by the author of the UQT as far back as in 1983. This phenomenon was discovered in 1989 (electrochemical experiments, M.Fleischmann, S.Pons). Many subsequently received experimental data confirmed the existence of nuclear reactions under very small energies, of nuclear transmutations in plants and biological objects, very slightly connected with generation of energy [7-8]. From the point of view of the UQT, which provides an explanation of the cold nuclear fusion mechanism, this process can be applied in practice (after the relevant devices are designed) for generation of energy, for production of isotopes, and for nuclear waste liquidation.

## Introduction

Inventors, as well as swindlers of all kinds, had long ago been trying to construct, or at least design, a *perpetual mobile*, i.e. an imaginary machine that produced work without any outside energy. Peter the Great even founded the Imperial Russian Academy of Sciences for such research, but the modern Russian Academy of Sciences does not like to recollect this circumstance. On the other hand, the French Immortals in 1755 decided not to consider any *perpetual mobile* projects at all, and, as we would see, were quite right as regards the Newton mechanics. The brilliant success

of the classic mechanics has strengthened still more the sacred belief of the mankind in the Divine Infallibility of the Conservation Laws, and today it is nearly indecent to express any doubts about these laws.

Let us first of all find out the origin of the conservation laws in ordinary mechanics. Practically any textbook will tell you that the Energy Conservation Law (ECL) follows from the homogeneity of time, the Impulse Conservation Law from the homogeneity of space, and the Angular Momentum Conservation Law from the isotropy of space. That is why many people have an impression that the conservation laws themselves follow only from the quality of time and space, which is today an undoubtedly relativistic notion. But, for example, the angular momentum is not a relativistic notion. So, such a narrow approach is not altogether correct, and it is necessary to turn to the second Newton law, or the equation of relativistic dynamics and the system insularity. However, *the qualities of the time and space ensue exactly from the analysis of the Newton mechanics*, though they are often construed incorrectly. Let us remind you the correct interpretation.

Homogeneity of time suggests that *if at any two moments of time two similar experiments are made in similar closed loop systems, the results thereof will not differ*.

Homogeneity and isotropy of space mean that *if a closed loop system is moved from one part of space to another, or is oriented differently, nothing will change*.

The making of the fundamental energy and impulse conservation laws from the Newton equation is very simple. Let us put down the main equation of dynamics as

$$\mathbf{F} = \frac{d\mathbf{P}}{dt}$$

For closed loop system  $\mathbf{F}=0$  (no external forces operating) and the equation integral will be

$\mathbf{P} = \text{Const}$  the impulse conservation law.

Now let us take the main equation of dynamics as:

$$\mathbf{F} = m\mathbf{a} = m \frac{d\mathbf{v}}{dt}$$

and multiply it scalarwise by  $\mathbf{v}$

$$\mathbf{F} \cdot \mathbf{v} = m \frac{d\mathbf{v}}{dt} \cdot \mathbf{v} = \sum_{i=1}^3 m \frac{dv_i}{dt} v_i = \sum_{i=1}^3 m \frac{d}{dt} \left( \frac{v_i^2}{2} \right) = \frac{d}{dt} \left( \frac{mv^2}{2} \right)$$

where  $v$  is the module of the velocity vector  $\mathbf{v}$ . For closed loop system  $\mathbf{F}=0$ , and the equation integral will be

$$\frac{mv^2}{2} = \text{Const}$$

one of the forms of the energy conservation law. From the definition of the angular momentum for a particle,

$$\mathbf{L} = [\mathbf{r} \times \mathbf{P}]$$

Differentiating both parts by  $t$ , we get

$$\frac{d\mathbf{L}}{dt} = \left[ \frac{d\mathbf{r}}{dt} \times \mathbf{P} \right] + \left[ \mathbf{r} \times \frac{d\mathbf{P}}{dt} \right]$$

Since the impulse vector is parallel to the velocity vector, the first bracket will equal to zero. On the basis of the resultant equation and the definition of central force as not creating any momentum, we get

$$[\mathbf{r} \times \mathbf{F}] = 0 \quad \text{or} \quad \mathbf{L} = \text{Const.}$$

In case of the central force in an unclosed system, the angular momentum is preserved by value and direction. The angular momentum conservation law for a closed loop system results in the same way as the impulse conservation law from the equation of the rotary motion dynamics:

$$\mathbf{M} = \frac{d\mathbf{L}}{dt}$$

For a closed loop system, the momentum of external forces  $\mathbf{M} = 0$  and the integral of the equation will be the angular momentum conservation law

$$\mathbf{L} = \text{Const}$$

In relativistic dynamics the emergence of the energy and impulse conservation laws separately can be easily received from the relativistic ratio for energy and impulse

$$E^2 = P^2 c^2 + m^2 c^4$$

Term  $m^2 c^4$  is an invariant, i.e. the same in all reference systems. In other words, it is a certain constant. This equation can be represented in a slightly different form

$$E^2 - P^2 c^2 = \text{Const}$$

For the equation to be valid, it is required that

$$E = \text{Const} \quad \text{and} \quad P = \text{Const}$$

and this none the other but conservation laws for energy and impulse.

Strictly, relativistic mechanics has a conservation law for 4-impulse vector  $P^\mu$ , but we will not dwell on these details, because small energies are what we are interested in.

In the classical theory, the energy conservation law states that the energy of a closed loop system remains unchanged, so, if the energy of such a system is designated at a moment  $t=0$  as  $E_0$ , and at the moment  $t$  as  $E_t$ ,  $E_0 = E_t$ .

## Conservation laws in ordinary quantum mechanics

The standard quantum theory formulates the energy conservation law in the same way. In quantum mechanics we have the same movement integrals as in classic mechanics. A certain value  $L$  will be a movement integral, if

$$\frac{d\hat{L}}{dt} = \frac{\partial \hat{L}}{\partial t} + [\hat{H}, \hat{L}] = 0 \quad (1)$$

Since  $[\hat{H}, \hat{L}]$  is defined by commutator of operator  $\hat{L}$  and of Hamilton's operator, any value  $L$ , *not depending explicitly on time*, will be the movement integral, if its operator commutes with the Hamilton's operator. When value  $L$  does not explicitly depend on time, the first item in (1) turns to zero. There remains

$$\frac{d\hat{L}}{dt} = [\hat{H}, \hat{L}] = 0 \quad (2)$$

and for the movement integrals not explicitly depending on time the Poisson quantum bracket equals zero. From (1) and (2) it follows that the average value of the movement integrals does not depend on time:

$$\frac{d}{dt}(L) = 0$$

All good papers on the quantum theory prove that probability  $w(L_n, t)$  to find at any moment  $t$  any value of the movement integral, i.e.  $L_n$ , does not depend on time. Further, is constructed as the movement integrals not explicitly dependent on time. Since operators  $\hat{L}$  and  $\hat{H}$  commute, they have common proper functions, which are functions of stationary states. Let us note that the latter follows from solutions of the equation without time, which was received from the full equation with imposition of requirement

$$\Psi(\mathbf{r}, t) = \Psi_0(\mathbf{r}) \exp\left(i \frac{E}{\hbar} t\right)$$

equivalent to search of only periodic solutions. Further, quite naturally, *there appeared an equation without time with actually imposed conservation laws, because now nothing depends on time*. Expansion by such proper functions looks as follows:

$$\hat{L} \Psi_n = L_n \Psi_n \quad \hat{H} \Psi_n = E_n \Psi_n$$

where

$$\Psi(x, t) = \sum_n c_n \Psi_n(x) \exp\left(-i \frac{E_n}{\hbar} t\right) = \sum_n c_n(t) \Psi_n(x) \quad (3)$$



$$c_n(t) = c_n \exp\left(-i \frac{E_n}{\hbar} t\right) = c_n(0) \exp\left(-i \frac{E_n}{\hbar} t\right)$$

Since (3) is expansion into proper functions of operator  $L_n$ , probability does not depend on time:

$$w(L_n, t) = |c_n(t)|^2 = |c_n(0)|^2 = \text{Const}$$

Since energy is a movement integral and probability  $w(E, t)$  to find at a moment  $t$  an energy value equaling  $E$ , does not depend on time, then:

$$\frac{dw(E, t)}{dt} = 0$$

Let us note once again that it is *the probability to find a certain value that does not depend on time, but not the value itself, which for any separate event is accidental and can assume a wide range of values.*

The quantum energy conservation law in the above form suggests a possibility of defining energy at a given moment without subjecting it to uncontrolled change, which raised no doubts in classic mechanics. But in the quantum theory the energy, without changing its value, can only be measured to

$$\Delta E \geq \frac{\hbar}{\tau}$$

where  $\tau$  - is measurement duration. Formally, it does not present any difficulties for the energy conservation law, since energy is a movement integral, and we have much time to make long measurement. For example, let us make measurements during time  $\tau$ , then leave the system to itself for time  $T$ , and then define energy again. The classic quantum energy conservation law states that the result of the second measurement will coincide

with the result of the first measurement to  $\Delta E \approx \frac{\hbar}{\tau}$ .

But even in the ordinary quantum theory all this is not consistent enough. For the real vacuum fluctuations can interfere, that always influences the results of a single process, but their influence disappears after the passage to an ensemble of events. Here we have a violation of the conservation law due to vacuum fluctuations, though existence of movement integrals, unlike in the Unitary Quantum Theory (UQT).

The generally accepted quantum theory carefully avoids the question of conservation laws for individual events in the case of small energies. This question is either not discussed at all, or it is said that *the quantum theory does not describe individual events. Yes, it does describe individual events, but it can only predict a probability of this or that result.* It is clear that in this case there are no conservation laws for individual events (it is wrong to speak about it in case of an accidental result of an individual event), and they appear only after the averaging by large ensembles of events. Essentially, it can easily be proved that classic mechanics follows from

quantum mechanics after summing up by a large number of particles, because for a sufficiently big mass, the length of the de Broglie wave becomes much less than the body dimensions, and no quantum-wave qualities can be talked about.

### Conservation laws in Unitary Quantum Theory

In the UQT [1-14] any quantum particle is not a point, but a source of field like in the ordinary quantum mechanics, but it represents a bunched field (wave packet) of a certain unified field. The dispersion equation of such a nonlinear field turned out to be such that the wave packet (particle) during its movement periodically appears and disappears, and the envelope of this process coincides with the de Broglie wave. Numerous particles during their periodic disappearance (spreading in the Universe) are repeated appearance from vacuum fluctuations. A theory of quantum measurements has been built, and the probability interpretation follows from the mathematical formalism of the quantum theory [10,11], and it is not postulated as in conventional quantum mechanics. Unfortunately, the main UQT equation turned out very complicated, for it is a system of 32 nonlinear integral-differential equations, which could require for their solution some new mathematical methods. But from this the relativistically invariant Hamilton-Jacoby equation, and the Dirac equation system strictly follow.

Papers [13,14] give a solution of the simplified scalar integral-differential UQT equation, which gave a localized solution for the form of a wave packet representing a particle. It turned out that the integral from a bilinear combination of such a solution for the whole volume gives with the precision of 0.3% the value of a non-dimensional elementary electric charge [13,14], which was essentially its first theoretical calculation. Then, this solution in the form of a periodically appearing and disappearing wave packet (which square describes the density of a spatial charge) can be replaced by an oscillating charged particle [15-18], the movement whereof will be described by the conventional Newton equations:

$$m \frac{d^2 \mathbf{r}}{dt^2} = -2Q \text{GRAD}U(\mathbf{r}) \cos^2 \left( \frac{m}{2\hbar} \left( \frac{d\mathbf{r}}{dt} \right)^2 - \frac{m\mathbf{r}}{\hbar} \frac{d\mathbf{r}}{dt} + \varphi_0 \right) \quad (4)$$

$$m \frac{d^2 \mathbf{r}}{dt^2} = -2Q \text{GRAD}U(\mathbf{r}) \cos^2 \left( -\frac{m\mathbf{r}}{\hbar} \frac{d\mathbf{r}}{dt} + \varphi_0 \right) \quad (5)$$

where  $m$ ,  $Q$ ,  $\mathbf{r}$  - mass, charge, and radius-vector of the particle,  $U(\mathbf{r})$  - external potential,  $\varphi_0$  - initial phase.

Since  $E = -\text{GRAD}U$ , and a magnetic field also exists, the Lorenz force should also be calculated for

$\mathbf{F} = \frac{Q}{c} [\mathbf{v} \times \mathbf{H}]$ , but in the electromagnetic wave  $\mathbf{E}$  and  $\mathbf{H}$  are equal, and for small energies value  $\frac{v}{c} \rightarrow 0$ , and

force  $\mathbf{F}$  can be ignored. Both these equations produce qualitatively similar results for different problems, but the first non-autonomous equation evidently does not have any movement integrals at all, and any hope for analytical solutions is very unreal. But for the second autonomous equation such hope still exists. Let us note that these equations describe more accurately the experimental results of scattering on the coulomb potential than the classic Rutherford formula! Application of these equations for the tunnel effect and scattering on short potential also produces correct results, but in this case passage through a high barrier (tunnel effect) will be defined by the initial phase. Of greatest interest, however, is the harmonic oscillator problem.

It is possible that a change in the properties of a material point in the process of its movement is just another step in the material point movement theory. In conventional mechanics this idea is not altogether new. There are Meshchersky's equations for bodies with a changing mass, and Tsiolkovsky's equation for a rocket. But so far, in the conventional quantum theory, the particle has a permanent and stable in space and time set of properties, and in the UQT all the parameters of the particle are changed and oscillate during movement.

It should be noted that *Newton did not introduce the notion of a material point at all*, and it would be ridiculous to think that he was not able to have this natural and rather trivial idea. Most probably, and it is not by chance, for today many troubles of the field quantum theory are rooted in the approach to the particle, as to the point, the most vivid example being a large bouquet of divergences. Nevertheless, this approach is very convenient and should only be used correctly. Let us also remember, that in accordance with the Newton corpuscular theory, beams of light were to be regarded as a flow of certain particles. They are emitted by a shining body in all directions and move in an empty space or a homogeneous medium evenly and straight, i.e. in the same way as the ordinary material particles do in the absence of any external or interaction forces. Newton explained reflection and refraction of light beams on the surface of border between two homogeneous mediums by the effect of certain forces on this border, in the direction perpendicular to the surface. These forces changed the normal velocity component, but did not touch upon the tangential one, which allowed to derive the reflection and refraction laws. However, the inability of such a theory to account for the light partial reflection and passage phenomena, as well as the Newton rings (which he himself discovered), led him to bouts (or fits) theory, which is quite modern, although nearly forgotten. Newton believed that for full explanation of all the processes it was necessary to suggest that some light particles could experience reflection bouts, and others – passage bouts. Let us imagine light falling to a flat surface, which is partially, reflects and partially passes. With quantum description of this phenomenon, a particle connected to the falling wave at the time of hitting the surface has a certain probability of passing or being reflected, and

Newton simply used the word “bouts” in place of the word “probability”.

It is absolutely clear that all descriptions of processes by the equation with an oscillating charge will be an approximation, because it is evident that no movement equations for a material point can describe even the simplest interference processes on a semi-transparent mirror, during which a material particle should be divided in two parts which will later eliminate each other by destructive addition. It is surprising, but the numerical solution of the problem of scattering on a short potential (the Ramsauer effect) for equations (4) and (5) gives the correct diffraction picture! But if we want to describe an individual particle correctly in the conventional quantum mechanics, the picture becomes inexact and purely probabilistic. At every given moment of time a particle can exist in only one of the mutually incoherent states, because one particle cannot move in different directions simultaneously (it cannot have many impulses at the same time). Nevertheless, there seems to exist a whole class of processes, where description with the help of equations (4) and (5) have certain sense. It is well known that in all experiments the local energy and impulse conservation law in individual quantum processes are true only under high-energy values. But under small energy values it is not so, at least because of the ratio of uncertainties and the probabilistic character of all the quantum theory predictions, and the idea of a global, not local ECL, is invisibly present in the quantum mechanics, and is certainly far from new.

In the strict UQT and the quantum measurement theory, a great role belongs to unavoidable vacuum fluctuations. It is clear that these fluctuations are totally unpredictable and non-invariant in relation to space and time translations. The same can be said otherwise: there are no habitual properties of time and space in this theory. Space-time is now not homogeneous and not isotropic. For example, if the system is transferred to a new point in space, or a certain experiment is repeated at another time, at the point where particle parameters are studied, and it interacts with the macro-device, a new value of vacuum fluctuations (different from the previous one) can appear and produce a different result. Of course, all this is only true for small energies and individual events.

Still more destructive is the UQT for the notion of a closed system. For individual events under small energy values this notion is simply unacceptable for the following reason: vacuum fluctuation at the location of the particle (e.g. in a potential pit) can be sharply changed at any moment. It can be caused by different factors – the nature of vacuum fluctuations itself, or the tunnel effect of another random particle.

Sometimes it is stated that conservation laws follow from the Nether theorem, though these results are present in the works by D. Gilbert and F. Klein. For any physical system, the movement equations from which can be received from the variation principle, each one-parametric continuous transformation that leaves the

variation functional invariant, corresponds to one differential conservation law, and there exists a clearly conserved value. It is easy to see, however, that vacuum fluctuations imposed on the varied function (integral of Lagrangian) do not in sum remain unchanged during parametric transformations (at least today it seems so), and this consideration does not work without preliminary of ensemble.

And now we are in for a little philosophy. The local Energy Conservation Law (ECL) in individual processes follows from the Newton equations for closed systems. It would be naive to think that its local formulation will be preserved forever, and would be a bad mistake to transfer the ECL from the Newton mechanics to the quantum processes without any changes, because the latter are more fundamental.

References to the first principle of thermodynamics are, strictly speaking, groundless, because this principle is a postulate. For example, well-known Russian mathematician N. Luzin, in a letter to an inventor wrote that the first principle of thermodynamics is the result of unsuccessful attempts of the mankind at building a *perpetual mobile*, and strictly follows from nothing. *Today it may be said with a great degree of certainty that no sophisticated machine in the framework of the Newton mechanics can be a perpetual mobile*, and the decree of the French Academy of 1755 not to consider any *perpetual mobile* projects is still valid. We will only add that now it is valid only for those projects that are based exclusively on the Newton mechanics.

There is the tendency in modern physics to reduce ECL, especially in theory, to the rank of a secondary derivation from the movement equations (movement integrals). Some physicists restrict the ECL to the framework of the first principle of thermodynamics, others, like D. Blokhintsev [37], think it quite probable that with the development of a new theory the form of the ECL will undergo certain changes. F. Engels wrote in his "Dialectics of Nature": "...none of the physicists actually regard the ECL as an eternal and absolute law of nature, a law of spontaneous transformation of the movement forms of the matter and the quantitative constancy of this movement in all its transformations". But many people do not share this opinion. M. Bronstein in his book "Structure of Matter" wrote: "The ECL is one of the main laws of the Newton mechanics. Nevertheless, Newton did not ascribe to this law the general character that this law actually possesses. The reason for this *erroneous* (italicized by authors) opinion of Newton of the ECL is very interesting...". It is now clear that in view of the above, such an opinion was not at all erroneous. Let us remind you that Newton predicted many things, even the UQT, in his "bouts theory".

On the other hand, the authors of quantum mechanics realized that there was no conservation law for single quantum processes under small energies at all. The idea that the construction of ECL, together with the second law of thermodynamics, was a statistical law, true only

on the average and inapplicable to individual processes with small energy, first occurred to Schroedinger, and later to Bohr, Kramers, Slater, and Gamov. In 1923 Bohr, Kramers and Slater made a desperate attempt to develop the theory, where the energy and impulse conservation laws in case of scattering would be true only statistically, on an average for long periods of time, but would be inapplicable to elementary events. Lev Landau even called it "Bohr's wonderful idea".

Later, however, the authors gave up this approach and, besides, this idea at that time did not follow from the quantum theory equations, and the authors, *to come out of the predicament, simply declared that quantum mechanics did not describe individual events at all*. Thus, the most vivid paradox of the quantum science was removed by a simple ban on thinking about it! But the ingenious idea that conservation laws do not apply to individual quantum processes and emerge only after the averaging by the ensemble of particles remains alive. This idea might have been a little premature, and, possibly, should be a little different.

The Unitary Quantum Theory (UQT), on the contrary, individual particles, and the difference in their behavior is accounted for by the initial phase of the wave function. In this case, local conservation laws do not exist for a single particle, and measuring the initial phase or some other parameters for an individual particle is quite a different matter. It is not true that the UQT has given up probabilistic description. Probabilistic interpretation remains, but the probability now is strongly dependent on the initial phase. Although the equations with an oscillating charge can determinately predict a particle's behavior, the measurements can be made only with the help of a macro device, which will give only a probabilistic result. Impossibility to determinate measurements does not change anything, for the UQT provides for a possibility of influencing the probability value, which was earlier unavailable. The existing Von Neumann theorem about hidden parameters does not effect our result, but the relevant discussion is too cumbersome, and we will leave it out.

*In other words, **all the requirements**, wherefrom the classical conservation laws follow, are now absent. We can hardly expect the conservation laws for individual particles to be preserved under small energies in such a situation.* Today we are convinced that the classical energy, impulse and angular momentum conservation laws for individual quantum objects are not valid under small energy values because of periodic appearances and disappearances of the particle. All direct experimental tests of the conservation laws were made for large energy values, and for small energies of an individual particle only probabilistic results can be received, and, in this case, it would be indecent even to recall the conservation law.

### Energy generation and perpetual mobile

Let us make the following imaginary experiment. For simplification purposes we will use in our reasoning a

certain quantum ball-particle. When a classical ball approaches a wall (perpendicularly for simplification), the speed of the reflected ball is always equal to the initial speed (we ignore friction and regard the ball and the walls as absolutely elastic). In the case of a quantum ball, the speed of the reflected ball will acquire in different experiments with absolutely equal initial conditions a whole range of values: some balls will be reflected at a speed greater than the initial speed, others – at a speed equal or lower than the initial speed, and all this is described by quantum mechanics.

Let us ask the following question: what if a second wall is found, parallel to the first one, in order for the ball to increase its speed after each reflection from the wall? Then we will have increased ball energy without any special efforts on our part. Such phenomena appear in the problem of particle oscillations in a potential pit (not necessarily parabolic) on the basis of equations (8) and

(9), when four types of solutions are possible, three of which are most important for us: stationary, “maternity home”, and “crematorium”. In the two latter solutions traditional conservation laws do not work. These solutions are presented in Fig. 1. Such oscillator behavior explains many experimental facts. From the physical point of view, it means that in stationary solutions with fixed discrete energies (conventional quantum mechanics) the speed of the particle reflected from the wall will be equal to the speed of the falling particle. If the speed of the particle is decreased after each reflection, it will mean the “crematorium” solution, and if it increases, the “maternity home”. Scenarios for situations will depend on the initial phase of the wave function and the particle energy. In ordinary situations the “crematorium” and “maternity home” solutions always compensate each other, and we find conservation laws.

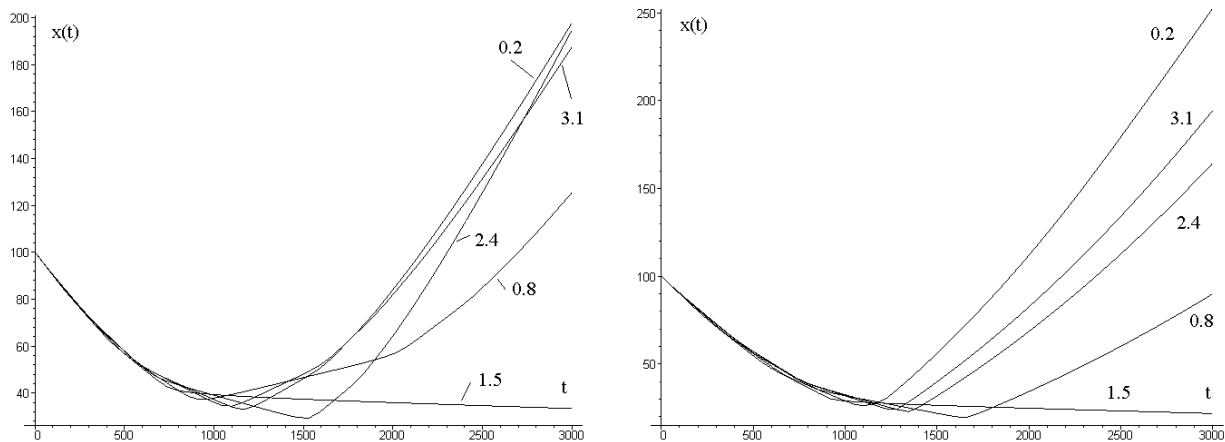


Fig. 1. Dependence of the distance between the moving charge and the nucleus on time for autonomous and non-autonomous equations.

The task of the future developers of new energy systems of the 21<sup>st</sup> century will consist in creating such initial conditions for a great number of particles making up a body that only the “maternity home” solution would be realized, and the “crematorium” solution would, if possible, be suppressed.

*It follows from the above that if the unitary quantum theory ideas are applied correctly, there is no fundamental taboo for a perpetual mobile. Such a taboo, as it was shown, does not formally exist even in conventional quantum mechanics (no conservation laws for individual processes with small energies), and, in order to generate energy, they should be somehow accumulated (all random processes with excess energy should be grouped together). But conventional quantum mechanics refuses to describe individual events and is unable to offer any ways for such grouping. The unitary quantum theory seems to offer such an opportunity.*

However, the great idea of free energy generation was distorted by effort of some research associations

interested to keep their stability degree, that everyone who started speaking about it was considered to be a crazy man.

Modern experimental physics has verified the correctness of conservation laws either for very large energies in individual quantum events, or for big macroobjects, when automatic averaging by ensemble is made, but the area of very small energies for individual events today is a *terra incognita*.

In order to see how the conservation laws for reflection (repulsion) of an individual particle from the Coulomb heavy nucleus with different values of the initial phase are violated, we have solved numerically one-dimensional equations (8) and (9) under the different initial conditions:

$$\hbar = 1, m = 1, 2Zze^2 = 1, x_0 = 100, V_{x0} = -0.1$$

In the Fig. 2 the distances between the moving particle and repulsive nucleus are shown as a time function, for

different initial phases in cases of non-autonomous and autonomous equations.

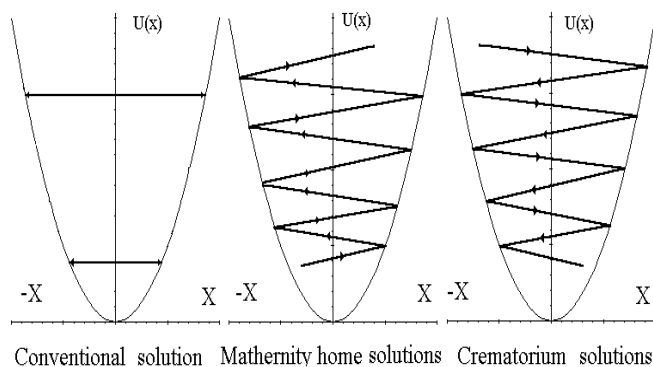


Fig.2 Three types of solutions for oscillator

It is evident from the calculations that the speed of a reflected particle can be equal, lower or higher than the speed of a falling particle. This situation seems to be true for all potentials.

Calculations were also made for other potentials: harmonic oscillator, Yukawa, Gauss, dipole, hyperbolic secant, and Wood-Saxon, and the quality results were nearly the same. If we sum up the impulse of all the particles falling with different phases and compare it with the summarized impulse of all the reflected particles, the summarized reflected impulse, for example, for the Coulomb potential, will be several percent higher than the summarized impulse of the falling particles. For other potentials such a small deviation can even be in the opposite direction. On the whole, this problem is very complicated and requires additional research, because all this is also dependent in quite a complex way on the initial conditions (initial speed, phase and distance).

Philosophically, any categorical taboos, like the impossibility of creating a *perpetual mobile*, are absolutely unacceptable. If everyone is convinced of it forever, the conservation laws and *perpetual mobile* taboos will remain unshakable as long as the human civilization exists. Of course, the funeral of the Conservation Laws can be very prolonged. Anyway, we are not going to do it, and our article might be just a cleanup for the future tomb, and the splendid funeral with all the necessary honors will be organized by future generations. *On the other hand, these laws will never die out completely and will surely be applied, but such spheres of science and technology will appear, though small at first, where these laws are not valid.*

The truth should be accepted irrespective of where it comes from. Words of F. Engels from the "Dialectics of Nature" will be quite appropriate here: "When the solar system ends its life circle and shares the fate of all the finite things, when it falls victim to death, what will happen next? Thus, we come to a conclusion that the heat emitted into the universe should have an opportunity, in a way yet to be established by the natural sciences, to turn into another form of movement, where it can be accumulated again and start

functioning. And in this case the main problem that prevented transformation of dead suns, back to red-hot nebulae will disappear".

The question of whether the conservation law exists in global form (we have already proved its not being local) remains open, because nothing leads to it except the inertia of the human mind. This inertia was based on the Newton laws, which were replaced by quantum laws. This mental inertia leads to a situation, when in case excessive energy is generated during solution of movement equations, a question arises how it can happen, and where it comes from. Of course, if a particle (e.g. a photon) falls on a semitransparent mirror, the packet is divided into two halves, which, due to imposition of vacuum fluctuations, will be recorded by photomultipliers as full-fledged photons [1-5]. The result is that energy is taken as if from vacuum: two photons appear in place of one. Another photon can be divided on the mirror into two halves, but they will not be recorded by the meters, and the energy will allegedly pass into vacuum. So, at one time we borrowed energy from vacuum, and then gave the same amount of energy back to vacuum at another place. You can think like that, and this process might take place. But if we consider the equation with an oscillating charge, the energy and impulse conservation laws are not valid there for solution of the movement problem, and vacuum fluctuations have nothing to do with it at all. As for the question of where the energy comes from, it is the result of our mental inertia, and is, essentially, an atavism imposed by the Newton mechanics. But the latter appears as a result of an extreme passage from quantum mechanics, which is more fundamental.

It is interesting to note that there is a bomb in the logical definition itself of the energy conservation law. If energy is something that cannot appear or disappear and always simply passes from one form to another, the only value satisfying this condition is zero. We are far from assuming that energy does not exist. But the problem of existence is solved differently in different philosophical systems, and the mathematical approach seems to be the most correct one: *an object exists if it is free from contradictions*. Energy has bad luck in this case, for under such an approach it should be zero.

Some cosmologists (for example, British prof. Fred Hoyle) are very willing to have a process, in accordance with which the Universe has certain places where energy appears from other certain places, in which it is eliminated. Besides, any philosopher at least a little bit familiar with astronomy, looking at the bright night sky, will see the birth of matter and its expansion into a still greater space. But for this purpose the Global Energy Conservation Law is superfluous and only denies what is observed. The head reels...

### Cold Nuclear Fusion and Nuclear Transmutation.

Let us approach the epoch-making experiments made by Fleischmann and Pons in March 1989 [30] from the positions of the equation with an oscillating charge. One

of the authors predicted in 1983 [9] the possibility of such nuclear reactions under very small energies. Without going into well-known details, we will sum it up very briefly: cold nuclear fusion exists, and there are no people or theories capable of giving a clear explanation. The chain of various mechanisms meant to explain this intriguing phenomenon is growing, but few really believe in them. The reason is as follows.

When a charged particle interacts with the nucleus, the potential energy is like in Fig. 3, where the right top part of the curve is conditioned by mutual Coulomb repulsion between the nucleus and the charged particle.

The repulsion potential will be

$$U(r) = \frac{Zze^2}{r}$$

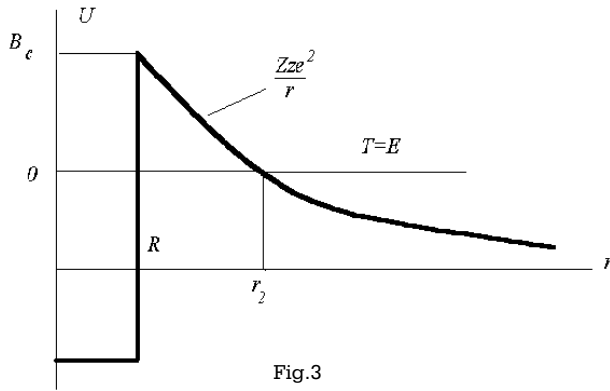


Fig.3

where  $Z$  – charge of the nucleus, and  $z$  – charge of the approaching particle,  $e$  – charge of the electron,  $r$  – distance between the particle and nucleus. When  $r=R$  (critical distance), then the potential energy curve goes sharply down, which is due to the emergence of intense nuclear gravitation, the potential whereof today appears more complex than could be imagined mathematically. If the charged particle overcomes the Coulomb barrier with a height of

$$B_c = \frac{Zze^2}{R} \approx \frac{Zz}{\sqrt[3]{A}} \text{ MeV}$$

it will further get into the nuclear gravitation area and a nuclear reaction will take place.

Let us look at the nuclear interaction of a charged particle with kinetic energy  $T < B_c$ . From the point of view of classical mechanics, there will be no nuclear reaction in this case, because the particle will approach the nucleus and at a certain distance  $r < R$  from the top of the Coulomb barrier will turn back and be reflected from it. However, from the point of view of quantum mechanics, there exists a tunnel effect, and the probability of such a tunnel passage, or transparency of potential barrier  $D$  is described by a well-known formula:

$$D \approx \exp\left(-\frac{2}{\hbar} \int_{r_1}^{r_2} \sqrt{2\mu(U-T)} dr\right) \quad (6)$$

where  $\mu = \frac{Mm}{M+m}$  is reduced mass. The bottom integration limit  $r_1$  coincides with the nucleus radius  $R$ , and the top limit  $r_2$  can be found from the condition

$$T = \frac{Zze^2}{r_2}. \text{ After integration we will get}$$

$$D = \exp(-2g\gamma)$$

$$\text{where } g = \frac{R}{\lambda_{B_c}}; \gamma = \sqrt{\frac{B_c}{T}} \arccos\left(\sqrt{\frac{T}{B_c}}\right) - \sqrt{1 - \frac{T}{B_c}},$$

and value  $\lambda_{B_c} = \frac{h}{\sqrt{2mB_c}}$ , the de Broglie wavelength corresponding to the kinetic energy of the particle equal to the barrier height  $T = B_c$ . If  $T \ll B_c$ , expression (6) is easily transformed to look as

$$D = \exp\left(-\frac{2\pi R B_c}{\hbar v}\right) = \exp\left(-\frac{2\pi Zze^2}{\hbar v}\right) \quad (7)$$

where  $v$  is velocity.

Let us now see what the shocking cold nuclear fusion will look like on the basis of the above considerations. The deuteron energy in an ordinary electrolytic Fleischmann-Pons cell will be about 0.025 eV, and the height of the Coulomb barrier for this case is

$$B_c = \frac{Zze^2}{\sqrt[3]{A}} = 0.8 \text{ MeV}. \text{ In classical mechanics it would}$$

be just naive to talk about overcoming such a barrier with a height dozens times greater than the kinetic energy. Let us now see how the tunnel effect will improve the situation. Let us assess the value of  $g$  and  $\gamma$  for the case of collision between two deuterons with such energy:

$$g = \frac{R\sqrt{2mB_c}}{\hbar} = 1.9;$$

$$\gamma = \sqrt{\frac{B_c}{T}} \arccos\left(\sqrt{\frac{T}{B_c}}\right) - \sqrt{1 - \frac{T}{B_c}} \approx 8883 \quad \text{and the}$$

probability of such a process will be  $\exp(-2 \cdot 1.9 \cdot 8883) \approx 10^{-7328}$ , i.e. practically pure zero. The fusion cross-section will be defined by the product of nuclear cross-section and the tunneling probability:

$$\sigma = \sigma_{nuc} D$$

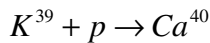
and, in the case under review, is also a very small value. If the clash parameter of deuterons is not zero, the emergence of centrifugal potential

$$U = \frac{\hbar^2 l(l+1)}{2mr^2}$$

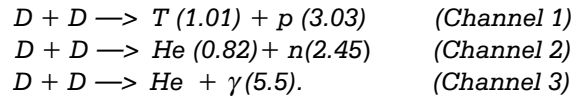
will still further lower the probability of such interaction.

*It is these very circumstances that make the nuclear physics scientist think that there is no cold nuclear fusion as such.* For example, such a serious and responsible edition as Encyclopedia Britannica 2001 found no place for the notion of cold nuclear fusion at all. Such an official position can be understandable only from the point of view that quantum mechanics is absolutely true and unshakable. Despite this, for the 12 years since the Fleischmann-Pons experimental discovery, nearly 30 international conferences have been devoted to this subject, there are lots of books and magazines on this subject, and the number of articles on the problem is nearing ten thousand. Today the situation is gradually developing in the positive direction, and the research in the field of hot nuclear fusion, which has already wasted over \$90 billion for 45 years, is slowly coming to naught.

But today there exist well known experimental data on cold nuclear fusion. They are numerous and various. We will dwell only upon the most important and sufficiently reliable results. Thus, the classical view of electrolysis of a palladium cathode saturated with heavy hydrogen in heavy water identifies an anomalous quantity of heat energy up to 3 kWt/cm<sup>3</sup>, or up to 200 Mj per small sample. Products of nuclear reaction have also been found: tritium (10<sup>7</sup> - 10<sup>9</sup>t/s), neutrons with energy of 2.5 MeV (10-100n/s), and helium. Absence of He<sup>3</sup> among the reaction products shows that heat is not generated by reaction  $d+p$ . Besides, emission of charged particles ( $p, d, t, \gamma$ ) is observed. Similar processes are observed in case of a gas discharge on a palladium cathode, of phase passage in different crystals saturated with heavy hydrogen, irradiation of deuterium mixture with a powerful sound or ultrasound flow, in cavitating microbubbles in heavy water, in a tube with palladium powder saturated with heavy hydrogen under a pressure of 10-15 atm., etc. In certain reactions (e.g.  $d+t \rightarrow \alpha + p$ ) neutrons of 14 MeV are absent, and such a strange situation occurs in other cases too. Activity of Li<sup>6</sup>, Li<sup>7</sup> in reactions with heavy hydrogen and protons failed to be discovered, whereas reaction



was well recorded even in biological objects. But the most intriguing fact of all these processes is the shortage of nuclear reaction products for explanation of the emerging heat effects. Thus, in certain cases the number of nuclear reaction products (tritium, helium, neutrons, quanta) should be millions of times greater in order to account in some way for the quantity of the generated heat. Generation of such a big amount of energy cannot be accounted for by either chemical or nuclear reactions, or by phase passages. The well-known interaction  $d+d$  goes along three channels:



All these reactions are exothermal. The third channel has a very small probability. It was experimentally discovered that they could occur under very small energies. In a molecule  $D_2$  the equilibrium position between atoms is 0.74A and in accordance with the conventional quantum theory, these two deuterons could accidentally enter a nuclear fusion reaction. But the interaction value is very small  $\lambda_{D_2} = 10^{-64} c^{-1}$ . There is a known estimate that in the water of all seas and oceans there are 10<sup>43</sup> deuterons, and in 10<sup>14</sup> years there will be only one fusion.

It follows from the aforesaid that the main problem impeding the occurrence of the  $d+d$  reaction lies in the existence of a very high Coulomb barrier. Our approach allows for this problem to be solved, and there is such an opportunity in the UQT. The UQT equation solutions show that the distance to which deuterons can approach each other is strongly dependent on the phase of the wave function (by the way, it is absolutely clear intuitively).

Let us consider the one-dimensional problem [15-18,31]. There is a stationary nucleus with charge  $Ze$  at the point of origin, and another nucleus is approaching it along axis  $x$  (charge  $ze$ , mass  $m$ ) at a certain initial velocity. The non-autonomous and autonomous equations of such a problem will look as follows:

$$m \frac{d^2 x}{dt^2} = -\frac{2Zze^2}{x^2} \cos^2 \left( \frac{m}{2\hbar} \left( \frac{dx}{dt} \right)^2 t - \frac{m}{\hbar} \frac{dx}{dt} x + \varphi_0 \right) \quad (8)$$

$$m \frac{d^2 x}{dt^2} = -\frac{2Zze^2}{x^2} \cos^2 \left( -\frac{m}{\hbar} \frac{dx}{dt} x + \varphi_0 \right) \quad (9)$$

Since an analytical solution was not found for all the areas of initial phases, numerical methods were applied with the following initial values:  $Z=z=1, e=1, m=1, x_0=-10, \hbar=1$  for different initial velocities and initial phase values. As had been expected, braking or acceleration of the particle happens only when the charge is large. But at the last stage, under certain initial

phases close to  $\frac{\pi}{2}$ , a wonderful process occurs: velocity,

charge and repulsing force are very small. Due to phase ratios, the small charge is not changed for a long time, which means that the particle (or rather what is left of it) is not influenced by any forces, and it is crawling at a permanent small speed for a very long time ("the snail effect") inside the field of another particle, and can come very close to the center. Such movement with a very small charge and a small speed can last for several hours, and disconnection of the external field will not effect this movement. This process reminds of quiet and



invisible scout penetration into the enemy territory. This phenomenon occurs only in certain phase areas, and can be conveniently called a phase hole, which is illustrated in Fig. 4 resulting from the solution of equation (8).

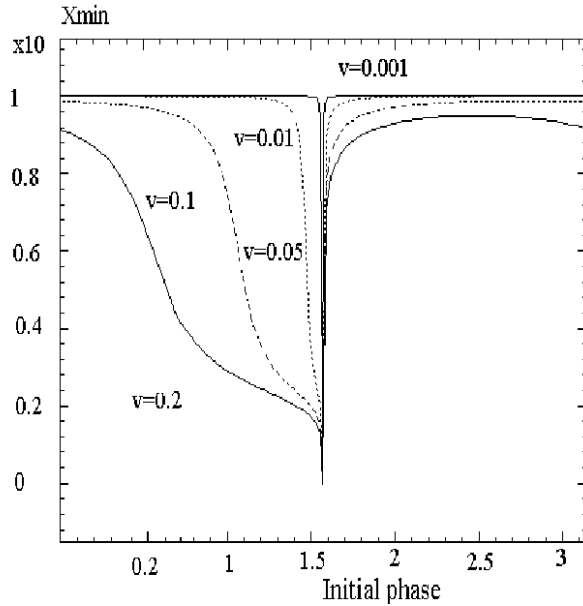


Fig.4. Distance to the turning point of the moving charge depending on the initial phase value for different initial velocities.

Let us note in passing that now we can account for one of the nuclear physics anomalies, which has a tendency to be totally ignored. Under a nucleon energy of 1 MeV, its velocity is  $10^9$  cm/s, nuclear radius is  $10^{-12}$  cm, and the passage time of the nucleus is  $10^{-21}$ s, but the time period in which the nucleon passes is usually anomalously long -  $10^{-14}$  and even more, and it is absolutely unclear what the nucleon is doing in the nucleus so long. In our model it is easily explained by the "snail effect".

For the same equation, the minimum distance was calculated between the charges dependent on velocity (Fig. 5) for different initial phase values. For comparison, Fig. 5 also shows the result of the classical calculation based on the Coulomb law. It is obvious from Fig. 4 and 5 that the minimum distance to which charges can approach each other is nearly independent of kinetic energy, but with reduction of speed the initial phase area width is reduced as well. In other words, reduced energy brings also reduced probability of a nuclear reaction.

The same results are true for the autonomous equation (9). Under the conventional quantum theory, the ratio of the reaction speeds in the tritium and neutron

channels should be close to unity:  $\frac{t}{n} = 1$ . But in many experiments on cold nuclear fusion this value is very different from unity and equals  $\frac{t}{n} = 10^9$ . In different

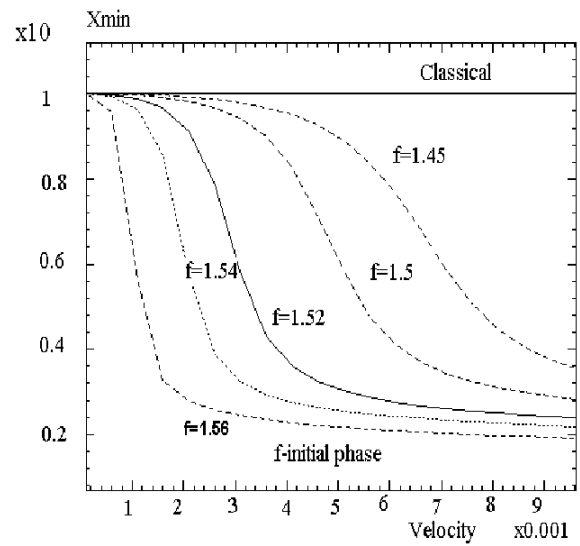
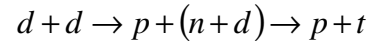


Fig.5 Minimum distance between charges depending on the initial velocity for different initial phase values.

experimental situations it is reproduced by different experimental groups with a very high accuracy. This very intriguing problem has so far received no simple explanation. Let us dwell on a possible cause for such a phenomenon. With a small velocity in the phase hole, neutrons are affected by nuclear gravitation forces, and protons are affected by electrostatic repulsion forces. Under the effect of this momentum, the deuteron will have enough time to turn in such a way that the neutron parts of the deuteron would face each other. After the neutron gravitation the nuclear forces will be saturated, which will weaken the proton connection, and one of the protons will leave the system. This reaction can be conditionally presented in the following form:



This reminds of the Oppenheimer-Phillips effect.

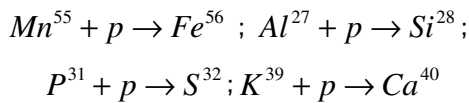
It is well known, however, that under big energies, the probabilities of the first and second reaction channels are the same, and this phenomenon should somehow be accounted for. Increased probability of the neutron channel with growing energy can be connected with the appearance of secondary neutrons in the reaction  $T + D = He + n$  (14.1 MeV). In a deuterium-rich environment, a big part of the resultant tritons will pass to neutrons in the process of this reaction, which has a cross-section of 5 barns under an energy value of 70 KeV. According to assessments in [32], the number of such secondary neutrons per one triton is

$7.9 \cdot 10^{-12}, 1.7 \cdot 10^{-9}, 2.7 \cdot 10^{-6}$  for energy tritons 10, 20 and 100 KeV respectively. Thus, the prevalence of  $\frac{t}{n} > 10^6$  can be expected only in those reactions, where tritium is born with energies over 40 KeV.

It should not be assumed, however, that the phase hole phenomenon in its whole area leads to a nuclear reaction. It can be assumed that reduction of the Coulomb repulsion is followed by reduction of strong

interaction. But how? Today nobody knows the exact equation of the strong interaction potential. Besides, the particle approaches the turning point  $X_{\min}$  is rather "thin". Will it be able to take part in a full-fledged nuclear reaction, or will it fly through, like it happens with the electron in the  $s$  – states of the atom? There are very narrow phase areas, when soon after the particle stops the charge grows quickly and is sharply accelerated. The charge can even be maximum in the nuclear force effect area. May be, it is this narrow phase area that is responsible for cold nuclear fusion, and in case of strong interactions the phase hole mechanism must be operating as well.

It was discovered long ago that nuclear transmutations have a mass character (especially in plants and biological objects), but they have little to do with energy generation. Examples of such reactions:



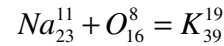
In reactions of this type, a very slow proton (with practically zero kinetic energy) penetrates the nucleus in the above-mentioned way and remains there. *No intranuclear energy is generated, because both before and after the reaction the nucleus remains a stable object.* In classical nuclear physics, the nucleus usually became unstable after it was penetrated by a charged nucleon with a large kinetic energy and always broke into parts, and the nuclear debris had an even greater kinetic energy. Reactions of the above type were considered impossible under small energies and for this reasons were not studied by classical nuclear physics. It seems to be a *completely new type of nuclear transmutations, not recognized by modern nuclear science, but experimentally discovered rather long ago.* Today there is a great deal of experimental material confirming mass nuclear transmutation phenomena. Moreover, there are many projects of neutralizing nuclear excess with the help of this technology. Journals *Infinite Energy, New Energy, Cold Fusion, Fusion Facts*, etc. and Internet are full of such projects.

Of course, a change in the nuclear charge will result in restructuring of electronic atom shells, but the energy related to this process will be about several electron-volts and is nothing in comparison with the energies of nuclear reactions from several to hundreds million electron-volts. By the way, nuclear engineers are accustomed to such energy ranges in nuclear reactions. It was this circumstance that made them deny *a priori* all nuclear processes in biology, because under such energy values of the debris dozens and hundreds thousand of complex biological molecules will be destroyed.

Quite a long time ago, Lois C. Kervran [33] wrote a book about nuclear transmutations in biology, and now, nearly 20 years later, its second edition was published! It gives, evidently for the first time, numerous

*experimental* data of the above-mentioned phenomena. The reaction of the official science is very interesting. For example, well-known physicist Karl Sagan, after reading the book about such *experimental* data, advised Kervran to read elementary textbooks in nuclear physics!

Some time later a research was made by Panos T. Pappas [58], who studied one of the well-observed nuclear reactions in biological cells:



Classical biology has long known about the existence of equilibrium, when the ratio between the number of  $K$  and  $Na$  ions is maintained with greatest accuracy despite the shortage or even absence of  $K$  ions in food. Later, in work [59] this nuclear reaction was even called the life equation, and the existence of such nuclear reactions in biological objects was proved by M.Sue Benford with the help of direct physical methods.

All thermonuclear fusion programs are based on blunt heating and compression of the reacting material. Despite the progress achieved, the head of the works in England, Dr. Alan Gibson [34], established several years ago that the model reactor design would be created not earlier than in 50 years. Today, this point of view is generally accepted. Even if the reactor is once made (although the authors have grave doubts about it), it will be very complicated, expensive, and harmful for the environment.

Classical approaches have so far not yielded any positive results, despite multi-billion investments and a great number of physicists, engineers, service personnel, and managers involved. It is only natural that this army of researchers is a potential impediment for all alternative projects of new power engineering. It has been noted that *"viability" of any idea is proportionate to the number of people involved and investments made.* For these reasons, the Fleischmann-Pons works were given a hostile reception in the USA and other countries.

All the controlled thermonuclear fusion programs are accompanied with the adjective "controlled", although there is no control whatever. It is simply that the initial quantity of the reacting substance is *prudently* made very small. For example, a ball of lithium deuteride during laser reduction has a diameter of several mm. So far no one has been seriously considering the question of utilizing the energy of an explosion of such a ball, which is approximately equal to the energy of an explosion of a box of antitank grenades.

The straightforward approach to fusion used by the modern science is very natural, because quantum mechanics has no methods of influencing this process. The future of really controlled nuclear fusion systems may be not on the way of primitive and blunt method of heating and compression of the material, but following UQT on the way of using collisions of nuclei having small

energy and corresponding fine adjustment of the wave function phase.

It is essentially possible in case of imposition of the external controlling electromagnetic field on the reacting system, which contains quasi-fixed ordered deuterium atoms and free deuterons. The same properties can be demonstrated by special atomic grid geometry. Diffraction scattering of a deuteron flow on such grids will lead to automatic deuteron selection by energies and phases.

It seems that in the Fleischmann-Pons electrochemical experiments such an ordered system existed in the Pd-D grid, and some phasing occurred, which accounts for the results of these experiments [30].

Today it appear to us that the cold nuclear fusion processes will be effectively used for nuclear waste liquidation and production of isotopes.

Many researchers [35,36] discovered that the quantity of heat generated in the process of electrolysis of ordinary water on nickel electrodes (there is no hope for nuclear reactions in such systems) is the same as in the electrolytic cell with heavy water. It confirms other measurements, which showed that the quantity of nuclear reaction products is millions times less than is required for such an amount of generated heat, and its origin remains a mystery.

Further we will give certain concrete data demonstrating the phase values of a deuteron with an oscillating charge, under which the deuteron can approach the nucleus to a critical distance of  $10^{-12}$  cm or less, i.e. giving the data to estimate the value of the above-mentioned phase "hole" in the interval  $(0, \pi)$  of the phase change.

Assume that the stationary nucleus with the charge  $q$  is placed to the coordinate origin  $x=0$  and the deuteron with the same charge  $q$  is placed at the initial moment  $t=0$  to the point  $x_0 < 0$  on the  $x$ -axis, and the deuteron velocity equals  $\dot{x}_0 = v_0 > 0$ . The units of mass, length and time are chosen in such a way that  $m = 1, \hbar = 1, c = 1$  ( $m$  - deuteron mass,  $c$  - light velocity). Charge  $q$  equals 0.085137266. Our units are connected (to 4 significant figures) with the system (kg, m, s) as follows:

$$\begin{aligned} 1 \text{ mass unit} &= 3.345 \times 10^{-27} \text{ kg}, \\ 1 \text{ length unit} &= 1.049 \cdot 10^{-16} \text{ m}, \\ 1 \text{ time unit} &= 3.502 \cdot 10^{-25} \text{ s}. \end{aligned}$$

The electron velocity corresponding to its energy of 1eV equals  $5.931 \cdot 10^7$  cm/s. The deuteron velocity corresponding to such energy will be assumed to be 3680 times less, and in our units it will be  $5.372 \cdot 10^{-7}$  (if  $c = 3 \cdot 10^{10}$  cm/s). Then the deuteron movement towards the nucleus is described by the equation

$$\ddot{x} = -\frac{2q^2}{x^2} \cos^2\left(\frac{1}{2}(t+t_*)\dot{x}^2 + x\dot{x} + \varphi_0\right), \quad (10)$$

where the parameter  $t_*$  is defined under the condition that the argument of cosine equals  $\varphi_0$  for  $t=0, x=x_0, \dot{x}=\dot{x}_0$  (thus  $t_* = -(2x_0)/\dot{x}_0$ ), and this parameter may be considered as the initial moment of so called local time.

In the interest for us are namely solutions of eq. (10) under very small deviation  $\varepsilon$  from phase  $\varphi_0$  and so we

put  $\varphi_0 = \frac{\pi}{2} + \varepsilon$  and rewrite eq.(10) in the following form:

$$\ddot{x} = -\frac{a}{x^2} \sin^2\left(\frac{1}{2}(t+t_*)\dot{x}^2 + x\dot{x} + \varepsilon\right), \quad (11)$$

where  $a = 0.0144967$ . Let the initial  $x_0$  to be equal - 500000 of our length units (i.e. approximately  $5 \cdot 10^{-9}$  cm) and the initial deuteron velocity  $v_0$  to be

equal to the velocity  $v_{00}$  corresponding to the deuteron energy of 1 eV or less. But it turned out that the precision of numerical integration of this equation under such initial conditions and under values  $|\varepsilon| = 10^{-15}$  and less is small and besides the interval of the integration must be very large. That is why this equation also had to be transformed by passing to "slow" time  $\tau = |\varepsilon|t$  to

the equation relative to the variable  $w = \left(\frac{dx}{d\tau}\right)^2$  as a function of  $x$ :

$$\frac{dw}{dx} = -\frac{2a}{x^2} \left\{ \frac{1}{\varepsilon^2} \sin^2 \left[ \varepsilon \left( \frac{1}{2}(\tau + \tau_*)w + x\sqrt{w} \pm 1 \right) \right] \right\}, \quad (12)$$

where  $\tau_* = -(2x_0)/\sqrt{w(x_0)}$  and  $+1$  if  $\varepsilon > 0$ , and  $-1$  if  $\varepsilon < 0$ . It must be added also the equation for  $\tau$  as a function of  $x$ :

$$\frac{d\tau}{dx} = \frac{1}{\sqrt{w}}. \quad (13)$$

The system of equations (12, 13) is, so to say, a "model" system describing fairly accurately the deuteron movement under all values of  $|\varepsilon|$  from  $10^{-24}$  to  $10^{-6}$ . Numerical integration of this system was fulfilled under different values of  $\varepsilon$  and under following initial conditions:

$$w(x_0) = 2.103, \tau(x_0) = 0, x_0 = -500000, \tau_* = 689573.18 \quad (14)$$

It may be noted that the initial deuteron velocity  $v_0$  equals 1.450172 (following the relation

$\dot{x}_0 = |\varepsilon| \sqrt{w(x_0)}$ ) for given initial  $w(x_0)$  and for  $|\varepsilon| = 10^{-7}$ , i.e. such velocity is approximately 3.7 times less than velocity  $v_{00}$  corresponding the deuteron

energy of 1eV. If  $|\varepsilon| = 10^{-6}$  then the velocity  $v_0$  is approximately 2.7 times greater than velocity  $v_{00}$ .

It turned out that the numerical tables for values of  $w, \tau$  obtained under different values of  $\varepsilon < 0$  in the interval  $(-10^{-24}, -10^{-6})$  don't differ essentially from each other. The following table is true to three-four significant figures for  $\tau$  and  $\dot{x}/|\varepsilon| = \sqrt{w}$ :

$x$	$\tau$	$\dot{x}/ \varepsilon $
-500 000	0	1.450
-50 000	$1.426 \cdot 10^6$	0.0493
-500	$1.002 \cdot 10^7$	0.000489
-200	$1.067 \cdot 10^7$	0.000440
-100	$1.090 \cdot 10^7$	0.000425
-80	$1.100 \cdot 10^7$	0.000423

If reducing the table values of  $x$  to centimeters, we obtain the following corresponding approximate values:

$$5 \cdot 10^{-9}, 5 \cdot 10^{-10}, 5 \cdot 10^{-12}, 10^{-12}, 0.8 \cdot 10^{-12}$$

The time interval  $\Delta T$ , in which the deuteron reaches the critical distance  $10^{-12}$  cm from the center, is  $67350/|\varepsilon|$  of our time units or

$(1.090 \cdot 10^7 / |\varepsilon|) \cdot 3.502 \cdot 10^{-25}$  seconds. If nuclear forces are not taking into account then the deuteron may approach the distance less  $10^{-12}$  cm.

We present here the table, where are given the initial deuteron velocities  $v_0$  in velocities shares  $v_{00}$  and the corresponding time intervals  $\Delta T$  (in seconds) for different values of  $\varepsilon$ .

$\varepsilon$	$\frac{v_0}{v_{00}}$	$\Delta T$ (s)
$-10^{-6}$	2.7	$3.82 \cdot 10^{-12}$
$-10^{-7}$	0.27	$3.82 \cdot 10^{-11}$
$-10^{-22}$	$0.27 \cdot 10^{-15}$	$3.82 \cdot 10^4$ ( $\approx 10.6$ hours)
$-10^{-23}$	$0.27 \cdot 10^{-16}$	$3.82 \cdot 10^5$ ( $\approx 10.6$ hours)

Let us note that the given data change essentially under positive values of  $\varepsilon$  ( $10^{-6}, 10^{-7}$ , etc.). There is some asymmetry of solutions behavior under negative and positive values of  $\varepsilon$ . The calculations show the minimum distance  $|x|_{\min}$  more than 500 of our lengths units even

for relative big initial  $w(x_0) = 10000$ . Thus, if we limit ourselves to the condition that the deuteron energy is not over  $(0.27)^2$  eV at a distance of  $5 \cdot 10^{-9}$  cm from the central nucleus, and the whole process of deuteron movement towards the nucleus does not exceeds approximately 10.5 hours, then the interval

$(\frac{\pi}{2} - 10^{-7}, \frac{\pi}{2} - 10^{-23})$  is approximately the sought

phase "hole" in the whole interval  $((0, \pi))$  of phase change  $\varphi_0$  in eq. (10).

If many deuterons with the energy not more than  $(0.27)^2$  eV at the distance  $5 \cdot 10^{-9}$  cm from the nucleus are equally distributed along their phases  $\varphi_0$ , the ratio of the length of this "hole" to  $\pi$ , equaling approximately  $0.3 \cdot 10^{-7}$ , is equal to a share (or a relevant percentage of  $0.3 \cdot 10^{-5}$ ) of deuterons overcoming the Coulomb barrier.

The above figures express at least the order of probability of the cold nuclear fusion occurrence, and this order is absolutely incompatible with the figures in the classical quantum mechanics mentioned above. Let us note once again that a one-dimensional problem was solved, and in case of an accurate analysis (not zero sighting distance will be taking into account) this probability will be lower. Let us also pay attention to

the large time intervals  $\Delta T$  calculated if  $|\varepsilon|$  is very small. It explains well the effect (observed by many researchers) of continuation of cold nuclear fusion reactions during even many hours after the disconnection of the voltage in the electrolytic cell. This effect was named even "life after death".

As for the analysis of the deuteron movement with the help of the autonomous equation, the calculations lead to initial velocities  $v_0$ , exceeding the above mentioned numbers, although the general motion picture is the same. But the autonomous equation is interesting, because in the area of those values  $x, \dot{x}$ , under which the product  $x\dot{x}$  is modulo small, it is possible to replace  $\sin(x\dot{x})$  with  $x\dot{x}$ , and the eq.(11) under  $\varepsilon=0$  to replace with simplified equation (describing the deuteron motion from initial point  $x_0 > 0$  to center)

$$\ddot{x} = a \frac{(x\dot{x})^2}{x^2} = a\dot{x}^2$$

This equation has a very simple analytical solution. Without giving very simple calculations, we will present the final formulas.

Let us take the following initial conditions:

$$x(0) = x_0 > 0, \quad \dot{x}(0) = -v_0 < 0$$

Then

$$\dot{x}(t) = -\frac{v_0}{1 + av_0 t}, \quad x(t) = x_0 - \frac{1}{a} \ln(1 + av_0 t)$$

It follows from these formulas that the velocity of a particle moving in accordance with the initial equation never turns to zero, and under

$$t = t_* = \frac{\exp(ax_0) - 1}{av_0}$$

$x(t_*) = 0$ , i.e. the particle reaches the center of the nucleus, its velocity at this moment being

$$\dot{x}(t_*) = \frac{-v_0}{1 + av_0 t_*} = -v_0 \exp(-ax_0) ,$$

so that it *passes through the nucleus and moves further.*

For example, let  $a=0.0144967$ ,  $x_0 = 1000$  ( $\approx 10^{-11}$  cm),  
 $\dot{x}(0) = 5.37 \cdot 10^{-10}$  ( $\approx 16$  cm/s).

Under such initial data, the product  $x\dot{x} = -0.0000537$ ,  
 so it is quite possible to replace  $\sin(x\dot{x})$  with  $x\dot{x}$ .  
 In this case,

$$t_* \approx 2.3 \cdot 10^7 \quad (\approx 8 \cdot 10^{-18} \text{ s}),$$

$$\dot{x}(t_*) \approx -29.9 \cdot 10^{-17} \quad (\approx 9 \cdot 10^{-6} \text{ cm/s})$$

These figures fit well into the reasonable framework, so the autonomous model can also be of use for the movement analysis in the problem under review. The phenomenon of particle passage through the Coulomb potential accounts very well for the existence of pendulum orbits in the Bohr-Sommerfeld model, when in states  $1s, 2s, 3s$  etc. the electron passes through the nucleus. Such states in the strict theory and experiment have no impulse, so in the Bohr-Sommerfeld model they were discarded as absurd. Now they have a right to existence. Further, the experimental data for angular distribution of non-elastic scattering by nuclear reactions (including reactions with heavy ions) reveal the big amplitude of the scattering forward. It is impossible to explain such effect by the formation of intermediate nuclei but it may be explained from the viewpoint of our UQT.

### General Principles of Creating New Energy Sources

In the ancient classical *perpetual mobile* idea it is supposed that energy is just created and not taken from outside (impossibility of a *perpetual mobile* is the first law of thermodynamics). There have appeared lately many articles and even books dwelling on the idea of energy generation from vacuum. We are not in complete agreement with many of these works, and we will dwell only on some of them, which, in our view, can be of interest. One of the main ideologists of this completely new sphere in science are Daniel C. Cole and Harold E. Puthoff, and their first serious work entitled «Extracting energy and heat from the vacuum» was published in Physical Review E, vol. 48, #2, (1993). In this work authors use the Casimir forces [60] making them produce useful work. The appearance of such forces in vacuum is understandable intuitively: if in a stormy sea we put vertically into the water two big parallel plates, on the outside part of these plates the waves will hit them at random, and between the plates there will be no waves. Then, the hitting of the waves outside the plates will produce a gravitation force between them

(the Casimir force discovered experimentally long ago), which the authors of this interesting work are going to exploit. It is easily seen that in this idea energy is generated from vacuum fluctuations.

Our approach is altogether different. When the equation with an oscillating charge was solved for the quantum oscillator, 4 types of solutions were discovered. For us only two of them matter – “crematorium” and “maternity home”. In one solution (“crematorium”) the particle slowly falls to the bottom of the pit and finally turns into a “specter” (under the strict unitary quantum theory it disappears, spreads about the Universe and contributes to vacuum fluctuations everywhere). In the other solution (“maternity home”) the particle can even be born of a very small fluctuation, or accumulate a sufficiently big energy. Let us underline once again that both these processes are not at all logically connected. In other words, there are such systems where energy will disappear completely (electrolytic baths), or increase unlimitedly (it might be our Universe).

It is the energy conservation law that presents the strongest impediment in all cosmological approaches. However, universes with birth of matter have long existed in scientific cosmology independently of us. There is known the theory of British astronomer Fred Hoyle based on the idea of continued creation of matter from nothing. The question of whether such an approach is realized in nature and whether the energy emitted by quasars is the result of work produced by a certain gigantic pit, is the most intriguing question of the future.

It is yet unclear whether the values of appearing and disappearing energy in these solutions are equal. But neither in the strict UQT nor in the equation with an oscillating charge vacuum (as a big set of random oscillations) is needed for energy generation. Of course, UQT admits of such an energy exchange with vacuum. For example, during split of a photon on a semitransparent mirror, at one time both halves of the photon will not be registered and will give their energy to the vacuum and disappear for the observers for good, at another time there will appear two photons out of one, and the lacking energy will be taken from vacuum. But *the movement equations (4) and (5) themselves know nothing about vacuum and can generate energy due to their nature* (they are noninvariant relative to the coordinate translations) and the conservation laws we are so accustomed to do not exist for them.

Let us remind you once again that the latter follow from the Newton equations, and the Newton equations result from averaging by a big number of events, while for individual events of small energies no conservation laws in quantum physics exist.

In other words, it can be said philosophically that a motion of a small wave packet, once started, will give birth to other movements (energy) and, consequently, to matter. Since most various and breath-taking speculations are possible, up to the creation of a universe, we will stop here.

Thus, the generated or disappearing energy in our approach can be manifest not only in the changes of the particle velocity during movement in a certain potential, but in the appearance or disappearance of the particles themselves as well. A change of the particle velocity in movement is most easily discoverable, and it is the velocity increase that can be used for generation of heat or electric current. There can be energy systems, which exploit the fact itself of charge oscillation and the consequence of it. It is very probable that these phenomena, contradicting the most fundamental laws of modern science, have been long discovered and even applied. But these are the very phenomena that are the easiest to be exploited at the first stage of development of such new energy technologies.

When an energy generation mechanism is used, crematorium-type solutions should be suppressed. But all the quantum processes are built on the basis of elementary acts, and each of them is impossible to be controlled separately. But if the probabilities of such processes are controlled, they, being multiplied by the great number of participants in the process, automatically become macroscopic variables of quantum kinetics, and the process itself becomes possible. It can easily be achieved, if process participants with correlated initial phases are selected.

Let us remind you that the Newton and relativistic classical mechanics follow from the strict UQT, while the Newton movement equations with the resultant energy and impulse conservation laws follow from the oscillating charge equation with averaging by the particle ensemble composing a classical body (material point). But these conservation laws are nonexistent for individual microparticles in our theory, and they appear only in case of averaging by the ensemble of particles. Thus, if the energy-generating processes are accumulated, and the processes where energy disappears are suppressed, a classical *perpetual mobile* can be created.

But the UQT and the oscillating charge equation have other differences not only from the equations of classical mechanics, but also from some equations of electrostatics and electrodynamics.

There is a fundamental theorem of circulation for the electric field. Let us dwell on it in more detail. Let us have a vector field  $\mathbf{E}$ , which can be an electrostatic or a gravitation field.

$$\mathbf{E} = P(x, y, z)\mathbf{i} + Q(x, y, z)\mathbf{j} + R(x, y, z)\mathbf{k}$$

Line integral

$$\Gamma = \oint_l (P dx + Q dy + R dz) = \oint_l \mathbf{E} d\mathbf{l} \quad (15)$$

is called circulation of vector field  $\mathbf{E}$  by contour  $l$ . Of course, circulation depends not only on  $\mathbf{E}$ , but also on the passage direction accepted in contour  $l$ ; by changing the passage direction we will change the circulation

sign. Form (15) is convenient for mathematicians, but for our purposes we will present equation (15) in a different way. If both parts of equation (15) are multiplied by electric charge  $q$ , on the right we will get the integral of force  $q\mathbf{E}$  by way  $d\mathbf{l}$ , i.e. work for moving the charge along a closed loop contour. It is well known that this value is zero.

$$\oint_l q\mathbf{E} d\mathbf{l} = 0 \quad (16)$$

If this value were not zero, an energy source could be created. For this purpose a charge should be moved in electric field  $\mathbf{E}$  from point  $a$ , located in the high voltage area of the field, to point  $b$ , located in low voltage area of the field, and then back, but along another route. The values of work from  $a \rightarrow b$  and from  $b \rightarrow a$  would be different, and we could extract work from the field without making any changes in the system. When the charge is constant, it is certainly true, so for a macroscopic constant charge this theorem is an analog of the energy conservation law. The authors have not come across such an interpretation of the energy conservation law in other works. If the charge is microscopic, then in the UQT it changes, depends on time, coordinate and velocity, so work from  $a \rightarrow b$  and from  $b \rightarrow a$  will be different, in this case work can in principle be extracted from the field without any changes made in the system.

### Discussion of Experimental Results

Let us now get down to explaining some very unusual experimental results, which the authors have nothing to do with, and which they sometimes regard rather skeptically. The point is that the sphere of new energy sources is the headache of all the human civilization, and in this sphere, like nowhere else, the dividends can be exorbitantly high, and for this reason there are in this sphere a lot of swindlers (even among the theoreticians) and simply erring people. The official science of the world does not so far believe in such research, but the most suspicious fact is the great multiplicity of such works. The authors are not inclined to regard all these people as swindlers or erring, because the UQT can offer a beautiful and simple interpretation of certain phenomena.

There are strange plants with the efficiency over 100%. They are even manufactured in small quantities and are rated among energy-saving devices already termed over unities. Japanese researchers take these problems very seriously, and the leading role in studying this problem belongs not to the USA, but to Japan, which even finances many US institutes in this framework. The total Japanese expenditures for this research exceed \$200.000.000 a year. It can be forecast that with the Japanese mentality and the state policy of exporting not natural resources, but superhigh technologies and intellect, Japan will find itself among the leading countries early in the 21<sup>st</sup> century. We think that our readers will not be surprised to hear that Russia has

not allocated a single cent for this program, and all research was made on pure enthusiasm.

In the USA such works do not get official governmental support either (like, for example, the dying out hot nuclear fusion problem), but a great number of private firms and individual businessmen are conducting large-scale research. The following US journals are devoted to the subject: *Journal of New Energy*, *Infinite Energy*, *Cold Fusion*, *New Energy News*, *Fusion Facts*, and *NET-Journal* (Switzerland).

Switzerland, Italy, Germany, and France are also among the countries where the new energy problems are seriously researched from the cold nuclear fusion point of view.

A very young sphere of power engineering has emerged and is quickly developing, which researches many new energy sources. In future those new energy-saving sources will first be used, which will considerably differ from the existing ordinary energy transformers in that they will generate additional energy that can be used in the interests of the mankind. The development of civilization will then be limited not by long-expected reduction of natural fuel resources, but by heat pollution of the environment.

Let us enumerate just a few of the new energy directions:

1. The Patterson fuel cell (CETI).
2. Supermagnet-superengines of Takahashi, Aspden and Adams
3. Swiss plant Testatika.
4. Engines operating on water.
5. Hypersound Griggs pump, the Potapov and Schaffer heat generators.
6. Schouder and Fox cluster systems.
7. N – machines of Farade, Bruce de Palma, Newman, Searl, Tewari, etc.
8. PAGD reactor of Canadian researchers P Correa and A. Correa.

This list can be complemented with the surprising experimental results received by physicists A. Samgin and A. Baraboshkin (Russia, Institute of High-Temperature Electrochemistry under the Russian Academy of Sciences, Ekaterinburg) [24,25] and T.Mizuno [26] (Japan). They appear to have used, totally independently of each other, special proton-conducting ceramics, which, when electric current runs through them, generate a thousand times more heat energy than the electric energy consumed. In some experiments by T.Mizuno this value even exceeded 70000(!). T. Mizuno in a personal talk with one of the authors of this report said that he feared very much the radiation sickness.

But no  $\alpha$ ,  $\beta$ ,  $\gamma$  radiation or nuclear debris was found, and the nuclear processes are not responsible for such energy generation. Such proton-conducting (or, to be more exact, deuteron-conducting) ceramics was made using the power metallurgy methods by agglomeration under high temperatures. In other words, all the

chemical processes in it had long been over. The origin of such an amount of excessive energy is absolutely incomprehensible in the framework of conventional science, for they cannot be accounted for either by nuclear or chemical reactions, or by phase passages. At first the authors of this experiment supposed nuclear fusion reactions of the D+D type. At our request, A. Samgin replaced heavy hydrogen (deuterium) during ceramics production with ordinary hydrogen. If the effect of such huge energy generation was connected with the nuclear D-D reactions, all the anomalous heat effects would have disappeared, but they persisted. After such a large quantity of energy was generated, the tablet disintegrated into powder.

These effects can easily be explained by UQT from the harmonic oscillator theory point of view. When the tablet is agglomerated, there remain in it some caverns of a size of hundreds Angstrom units. When direct or alternating current flows through it, the protons and deuterons in their movement (there are few electrons in such ceramics) get into these caverns, and a process can start which is described by the “maternity home” solution. A particle accumulating energy, oscillates in such a pit, and finally the energy will be sufficient both for heating and for destruction of the pit walls (tablet turning into powder). The same processes seem to be taking place in a palladium electrolytic cell with heavy water, and in a nickel electrolytic cell with ordinary water, which accounts for anomalously large heat generation, not related to nuclear processes.

It would be good to verify experimentally the dependence of the tunnel effect on the initial phase. But it seems us that it is more important for our opponents, since both cold nuclear fusion (CNF) and discovery of nuclear transmutations (*which, from the point of view of modern science, are even more absurd than the existence of CNF*) evidently cannot be accounted for in any other way. Besides, such a direct experiment is of a fundamental value. There are today a lot of people and groups in the world, who pin great hope on exploiting the nuclear transmutation phenomenon for the purposes of processing and recycling of nuclear wastes, and the question of industrial generation of tritium for military purposes using CNF methods was under consideration in Los-Alamos. Internet magazines are full of such information. We are not giving Internet addresses here, because everything is constantly changing in this live system.

Let us analyze some of the above-mentioned devices. The first, the oldest and the most mysterious information was information about internal combustion engines operating on water.

Let us give just one example. When we were students, one of our teachers, the late Professor G.V. Dudko (1959) told us that in 1951 he had participated in the testing of an internal combustion engine [39,55-57]. The device represented a hybrid of a diesel and an ordinary carburetor engine, where a gas of petrol was needed to start it and then ignition was switched off, and an



ordinary fuel pump sprayed into the cylinder warmed up and strongly compressed water with special additives (which the inventor himself put into the tank in small quantities, and which, as we now understand, represented the principal secret). The engine was installed on a boat. The researchers were riding for two days in the Azov Sea, and only water vapor was the engine exhaust. Professor Dudko himself drew the water fuel overboard and poured it into the tank. They needed much water, several buckets a day, but there was no shortage of it... The question of why, if everything was so great, these engines are still not in use, can occur only to a person who has never lived in Russia.

From the point of view of the solutions of the harmonic oscillator problem, the following theoretical possibility exists [40,44,47,55-57]: if water with the necessary additives (which, evidently, represent the secret of many invented engines operating on water) is compressed and sprayed into the cylinder, each drop of water, when it gets into the cylinder after being compressed, will start dilating and will pass by inertia the equilibrium position. As a result, caverns (empty volumes) can be formed in it, with a size of several dozen of Angstrom units. If a free proton (or some other microparticle) gets into such a cavern in the required phase (it is supposed that the task of the additive is exactly this), the "maternity home" solution will be realized and some of the drops will explode... Later we heard and read many times about various Russian inventors, who had successfully created and tested engines operating on ordinary water with some mysterious additives.

Of course, the possibility of catalytic water decomposition with small energy consumption before spraying into the cylinder is not at all excluded. There are films and information in Internet about testing of cars operating on water, which is catalytically (with small energy consumption) decomposed into oxygen and hydrogen. Such power engineering would be ecologically absolutely clean, and the only restriction would lie in heat pollution of the environment.

An ideal solution for the motor transport could also lie in use of some new types of electric energy generators. The UQT even admits of the possibility, which was long observed in the experiments of Nicolas Tesla and in those made by Canadian physicists the Correas, who even received a patent for a system generating energy from vacuum fluctuations (as they believe) [45]. The readers could have got acquainted with our detailed theory of these processes in [46]. But the ideal system for the automobile would certainly be Testatika.

Any imagination will be amazed at the thermal cell CETI created by James Patterson, USA [27], in which takes place the electrolysis of specially made nickel balls in ordinary water. The US paper «Fortean Times»<sup>1</sup> 85, 1995, wrote about it: "December 4, 1995 will go down into history. On this day a group of independent experts from 5 US universities was testing a new source of energy with a stable output heat power of 1.3 kWt. The consumed electrical energy was 960 times smaller". All

experts note that the generated heat is of mysterious origin and cannot be explained by chemical or nuclear reactions, as well as by phase passages. The US ABC TV showed on February 7 and 8 1996 in the «Nightline» and «Good Morning America» cycles of programs about the development by Patterson of a new energy source generating hundreds of times more energy than it consumes. The mysterious nature of the generated heat was again underlined. It is interesting [34] that Motorola tried to buy the CETI patent from its authors for \$20.000.000, but met with a refusal. We are sure that Motorola had invested a certain amount of money into the study of this problem before making such a serious offer. All that happens within the Patterson element has nothing to do with nuclear reactions (although Patterson told one of the authors that he was of a different view), and, in our opinion, can be accounted for by exactly the same processes as were described above for proton-conducting ceramics.

The sonoluminescence phenomenon, when certain liquids start shining if weak ultrasound is run through them, also looks very mysterious. No satisfactory explanation has so far been found for this experimentally proved phenomenon, discovered by Moscow University Professor S.N. Rzhavkin in 1933. As Nobel Prize winner Professor Yulian Schvinger said, "it has no right to exist, but it does exist" [38]. This phenomenon can also be explained from the above-mentioned positions.

There are also heat generators (Yu. Potapov [21-23], Moldavia, James J. Griggs [28], and Huffman [29], Schaffer - USA). In them many cavitating bubbles are formed during circulation of ordinary water, in which excessive energy is generated, with the output to input energy ratio approaching 1.7. In these experiments and plants no chemical or nuclear reactions can take place, and thousands of Potapov's heat generators have been manufactured for heating homes. In such devices (they are very different in appearance) a great number of cavitating bubbles are created in a flow of water. This is achieved either with the help of interrupting the water flow with a special rotor (J. Griggs, Huffman, Schaffer), or the water flow is twirled by a special helix and then enters the zone of sharp dilation, where cavitating bubbles are formed (Yu. Potapov). In general, it should be said that cavitation remains a great puzzle for theoretical hydrodynamics and science. For example, forged multi-ton screw propellers of big nuclear submarines under certain operation modes and geometry of the surrounding forms can be destroyed by cavitation within only a few hours. It happens because of huge energy generated in cavitating bubbles.

Under certain values of phase and energy, a particle in the pit, each time reflecting from the walls, will have a greater velocity than that of a falling particle (this is within the uncertainty relation), and after many reflections will accumulate a fairly big energy which will be generated in the form of heat or bremsstrahlung when the pit is destroyed, and, finally, the energy of the oscillations of such a particle accumulated in the

pit will always be transformed into heat in an ordinary solid body or a liquid. This physical idea immediately accounts for both sonoluminescence (although for sonoluminescence in general this mechanism is less primitive), and energy generation in proton-conducting ceramics, nickel during electrolysis in ordinary water (CETI element), and water bubbles of commercial heat generators. The theory predicts that the samples should be fissure due to increased pressure on the walls of the potential pit with the growth of energy, which fact also takes place, since both ceramic samples and nickel balls in the CETI element finally disintegrate. It is evidently for these reasons that any metal containing much hydrogen in its grid becomes fragile and is quickly destroyed, which fact is well known to engineers.

The small number of experiments does not so far allow for making concrete conclusions as to what particles generate energy in pits (microbubbles). Besides, for at least an electron to disappear a pit of about 0.5 MeV is required, while in a solid body the pits are about several eV deep, and what seems to happen is only loss of kinetic energy, and not disappearance of particles. The fact that this process requires very deep potential pits, which do not exist in a solid body, does not change the essence of the matter.

Of course, under ordinary conditions, both competing solutions usually take place at once: “maternity home” and “crematorium”, which compensate for each other and the energy is preserved. For energy generation, the “maternity home” solution should prevail. Both these processes take place simultaneously and compete with each other, but, formally, they are not connected in space and time. The complexity of the energy generation problem lies in suppressing the “crematorium” solution by a careful selection of different parameters and promoting the “maternity home” solutions. So far we cannot say for sure what the optimum dimensions of such cavitating bubbles are, or which object oscillates in them, because for this purpose special experiments are needed, which so far have not been staged.

Of course, the inexorable Robber in the form of the Carnot principle stands in the way of transformation of the heat generated in a heat generator or ceramics into electrical or mechanic energy. In accordance with this principle, all mechanic or electrical energy can be transformed into heat, but the reverse process is always connected with big losses.

If there are experiments and plants in which energy generation contradicting the conventional conservation laws is discovered, there should also exist opposite ones, where energy disappears completely, i.e. the “crematorium” solution prevails. It proved to be true. There are such modes during electrolysis in electrolytic baths, under which the temperature of the solution in the bath is strongly reduced for unaccountable reasons, and this fact has no explanation at all. This phenomenon long ago was noted by attentive industrial engineers, and it is called the “bath-freezing” mode [49,50].

Chinese physicist Swe-Kai Chen from Taiwan in his experiments [48] stably observed the same phenomena. It is quite easily explained: a particle with a velocity exceeding the most probable velocity in this distribution gets into caverns on electrodes and after some oscillations reduces its velocity, which becomes smaller than the most probable one, and then the particle leaves the cavern at a small speed, and the same process can happen to another energetic particle. This leads to the cooling of the cell in the case of such mass processes.

The problem of ferromagnet magnetization (the Easing model) can also be reduced to the orientation of a magnetic doublet by the external magnetic field, and then it is essentially the harmonic oscillator equation with a slightly different return force ( $F = \frac{\mu}{r^3}$ ) and all the conclusions made earlier remain in effect. That is why magnetization should also produce energy generation effects. This proved to be true. For the general public everything began on May 17, 1996, when Frode Olsen from the research group “Free Energy” showed on the Norwegian TV (TV2) a surprising film about a “dynamic sculpture” made by artist and sculptor Reidar Finsrud from Skaarer, Norway. The author of this “dynamic sculpture” *had no idea about physics* and had been making it for 12 years. Einstein's idea of how discoveries are made conveniently comes to mind at this point: everyone knows that a certain thing cannot be done, but there is a man who does not know it, and it is he who makes the discovery.

This “dynamic sculpture” accompanied by an “explaining” poster «*perpetual mobile*» represents an iron well-polished ball with a diameter of 2.7 inches weighing about 2 pounds. The ball is rolling along a circle on close guides resembling two parallel skids with a diameter of 25 inches past the poles of three permanent magnets, where it is magnetized. In the area of three permanent magnets three more mobile magnets are installed on special mobile 5-inch long levers, and these magnets, when the ball passes them, are slightly inclined (due to the ball gravitation) and, after the ball passes them, are raised by the holding springs (sway like yokes). The ball makes a complete turn in 3 seconds. All this magic (***they say the ball had been rolling along the close contour for more than a year***) does not have any sources of energy and is installed for everyone to see in a Norwegian picture gallery on a special stand covered with a glass cover. The authors only saw a good TV film about this installation and were mostly surprised at the fact that the ball had not stopped during uninterrupted shooting (about 20 minutes).

We are well acquainted with circus tricks, but it is absolutely incomprehensible how such a trick could be staged using some secret methods. It is clearly seen that the ball in its movement always partially transfers its energy to the three long swaying pendulums, but there is no way to use them for pushing the ball and making up for friction, this being the only trick that could, in our view, be applied here. All the rest is clearly visible and contains nothing suspicious.

Let us estimate the generated energy. At an initial speed of about 1m/s the ball stops after 30 seconds, if all the magnets are removed. It means that the energy consumed in 30 seconds is about 0.5 joules, or 1/60 Watt. The total energy generated in a month is 43,200 joules, and this is huge energy, much greater than that of a good shell!

It is clear (if the word is relevant here at all) that when the ball is approaching the permanent magnet and the process of magnetization is going on, it is accelerated, but when it mechanically gets past the equilibrium position and, moving away from the magnets, becomes demagnetized, the gravitation (which now starts slowing the ball down) will be slightly less than it was at the moment of the ball's acceleration. This small difference in forces provides for small positive work to overcome friction. Energy generation and similar things during magnetization had been *predicted* by one of the authors in magazines *Infinite Energy* vol.1, No.2, p.38, (1995); *Proceedings of the ICCF5*, p.361, April 9-13, (1995), Monte-Carlo; *Cold Fusion*, No 11, p.10, (1995); *Chinese Journal of Nuclear Physics* (vol. 19, <sup>12</sup>, 1997). The quantum-mechanic processes are very complicated, but some of them can be understood.

All keen physicists were quick to understand it, and J. Naudin in France made a similar, but much simpler experiment. A ball of a soft magnetic material is swaying along parallel U-formed skids in a system of four magnets. Near the bottom of the U-form there is a small smooth step. It may have been made to make the magnetization and demagnetization processes different in time, which is very important. If there are no magnets, nothing interesting happens and oscillations are quickly (in a few seconds) damped. If the magnets are present, oscillations go on up to 3 hours 27 minutes. It appears that in this case the author failed to find good material and parameters of the plant, so friction was not compensated completely. In all these experiments demagnetization of permanent magnets does not happen, because the experiment is repeated many times with the same results.

And now a few vague words about demagnetization processes. During magnetization of the ball, the magnetic moments of its atoms are oriented (like the hands of a compass) along the field lines. When the ball leaves the magnetic field area, the atom magnetic moments are disoriented under the influence of the heat motion, and it becomes demagnetized. In the unitary quantum theory the share of the oriented magnetic moments in the external field can be bigger than in the conventional quantum mechanics (the "maternity home" solution), and the ball gravitation can be stronger due to it. Disorientation of these moments happens similarly in both theories. It seems to be for this reason and due to the difference in magnetization and demagnetization time that a difference in magnetic forces occurs when the ball approaches the magnet or moves off from it.

The scientists of the older generation will remember that a similar toy was shown in the 30's to David Gilbert, who said it was the most interesting thing he had ever seen. A question arises as to why it has not yet been realized. We do not know a physical-mathematical answer to this question, and it is not our task to analyze the social reasons of this phenomenon. Japan has a different mentality, and there is a governmental program for generating energy from permanent magnets. Takahashi [51] even seems to have made an electric engine with an efficiency of up to 318%!

Still more mysterious is the long-known problem of energy shortage in many biochemical reactions with ferments (enzymes). For example, in the well-studied reaction of disintegration of polysaccharides in the presence of lysozyme the following happens: a polysaccharide molecule gets into a special cavern in a big lysozyme molecule, and some time later its debris are thrown out of it (Fig. 6). The broken binding energy of the polysaccharide is about 3 eV, while the energy of the heat movement is only 0.024 eV. From the standard science point of view, it is absolutely unclear where lysozyme takes the energy to break the polysaccharide. No satisfactory mechanism for explanation of such reactions (and they are very numerous) was found, and all this was "swept under the carpet", as physicists say. The UQT provides for a completely new look at the catalytic processes, which has an incomprehensible source of energy reducing the molecule activation energy. From our point of view, this process is a variant of the "maternity home" solution for oscillator.

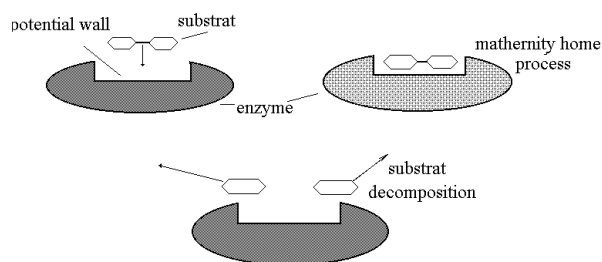


Fig.6. Break of polysaccharide molecule by lysozyme.

The most surprising thing is that in all the cases generation of excessive energy cannot be accounted for by chemical reactions or phase passages. If nuclear reactions do sometimes happen (which should not be according to modern science), they can account for only a hundredth or a thousandth share of the generated heat energy. There is no doubt that all these are effects of new physics, for in the framework of the old physics all this is simply unexplainable.

But the existence of a plant that produces *out of nothing* about 10 kilowatt of direct current electric energy with a voltage of 300 V seems nearly impossible. The story was described by one of the authors in three different magazines, and we will just give a brief resume [52-54].

In summer 1999, at the invitation of Swiss physicists (Director of the Institute of New Energy Sources in Egerkinhen Adolph Schneider), one of the authors

visited several research organizations. It is interesting that there is such an institute in small Switzerland, and there is none in big Russia. The purpose of the invitation was very simple: to explain the operation of a plant generating energy out of nothing, i.e. a *perpetual mobile*. In Switzerland such plants are called Testatik Machine M/L Converter from religious group «Methernitha» (Address: Methernitha, CH-3517 Linden, Switzerland, phone: ++41 31 97 11 24).

Such machines exist today in the Swiss town of Linden near Bern. Part of the town belongs to the Religious Christian Community, which is fenced and heavily guarded. There are about 250 members of the Community, many of them are physicists, graduates of the universities of Geneva, Lozanne, Bern. It is not only a research laboratory, they have their own TV center, a film studio, a small furniture plant, shops, garages, residential blocks, and support services. You will probably have guessed that this community does not consume any energy, and this is the most accurate fact in the whole story, for the inquisitive journalists have found out that no money from them comes to the accounts of the local power station, which provides power for all the town. In a cellar of one of the houses they have a power station that produces energy... out of nothing. The author of this inexhaustible source of free direct current energy is Swiss physicist Paul Baumann. Let us briefly describe these fantastic plants: they are of four types (sizes) with capacities of 0.1, 0.3, 3 and 10 kWt. Externally, the plant resembles very much the standard electrostatic machine with Leyden jars often used in physical demonstrations. There are two acrylic disks with 36 pasted narrow sectors of thin aluminum, which rotate in different directions. In the first samples ordinary gramophone records were used for disks. The machine is started by pushing the disks in different directions by fingers. The rotation speed is 50-70 turns per minute. After the start disks rotate independently and can be easily stopped by hand, the direct current voltage is about 300-350 V, and the current is up to 30A. The mechanical energy used for rotation (only 100 mWt, according to measurements made by Austrian Professor S. Marinov) is hundreds of thousand times smaller than the generated electrical energy. The biggest plant for 10 kWt has plastic disks with a diameter of over 2 m, the smallest one – 20 cm, the weight of the plants is small enough, the 3-kWt machine weighing about 20 kg.

The charge separation process (which consumes energy!) practically does not slow down the disks. Connection of a load in the form of a 200-Wt bulb does not change the rotation speed either. No cooling or heating of the air or machine parts during long operation takes place, only a slight smell of ozone is felt. The system is noiseless, compact, environment-friendly, and can be installed anywhere.

The Community management thinks, and quite rightly, that wide spread of such systems in the world will lead to a heat explosion, because all the energy generated by the mankind finally finds itself in an energy dump

(is transformed into heat), and all this can finally lead to overheating of the environment. They absolutely do not believe (and not without grounds) in the capability of the mankind as a whole to negotiate reasonable use of this invention, and they think that the harm caused by it will be greater than from nuclear, bacteriological, or conventional weapons. Their main idea for the mankind is to live in balance with the environment and to make full use of the energy of the wind, the sun, the water, etc. For this reason the Community is heavily guarded, and they are not going to donate their main discovery to the mankind.

Professor Stephan Marinov visited the Community twice (in July 1988 and in February-March 1989). He was even given such a plant with a capacity of 100 Wt (300 V, 0.3A), which he studied in his laboratory. As far as we now know, even the inventor of this machine does not fully understand its operation principle, so he contacted Marinov out of sheer curiosity of a scientist.

In 1989 Professor Marinov published a book "Thorny Path to Truth – Documents of Violation of Conservation Laws" in International Publishers East-West. The book contains a lot of photos, a measurement report, and a description of the plant. He also organized a research group called "Free Energy" within the Community (Methernitha Group Stephan Marinov Free Energy).

There are very interesting words in this book: "I can state without any doubts that this machine is a classical *perpetual mobile* in its pure form. After the initial push, it goes on rotating by itself for an indefinitely long time, constantly producing electrical energy in the amount of 100 Watt... It is still unclear, however, how it all can happen...". As far as we know, nobody has managed to build a similar plant elsewhere.

We have an approximate idea of how the plant operates. The idea is as simple and ingenious as that of the wheel, which is absent from the surrounding nature, so the inventor could not borrow the idea. We will just show that the existence of such a plant is in full conformity with the UQT. It is natural that the plant operates on the basis of the charge separation principle. Let us have two metal spherical surfaces with a hole, isolated from the earth and from each other. If, with the help of an insulated stick, we transfer the first electron from Ball A to the internal surface of Ball B through the hole, a difference of potentials will occur, and if we transfer the second and the subsequent electrons, Ball A will attract the transferred charge, while Ball B will repulse it, and energy will have to be spent during the transfer of charges (Fig. 7).

Let us remind you that under the existing circulation theorem (16), the charge transfer work will consume the same amount of energy as will later be generated during the passage of electric current resulting from charge separation. But in the UQT the circulation theorem (16) for an *individual elementary charge* is not valid. Thus, we can select the time and route, along which the charge will be transferred in such a way, that

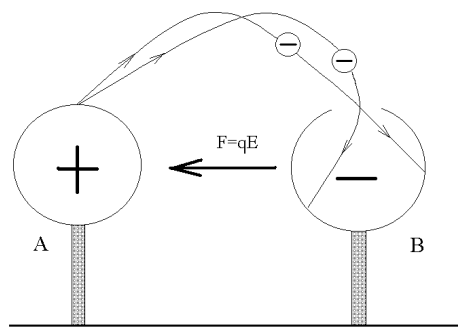


Fig.7. Work for moving the charge depends on method of movement and route.

the charge value during the transfer will be close to zero, and, consequently, the electrostatic force and the charge transfer and separation work will be close to zero too. For example, instead of selecting the route you can wait for the charge to be reduced to zero and then transfer it quickly, and when the charge increases, immediately stop the transfer and fix the charge. Or you can duly select the route and velocity. There are many options. This was evidently realized by Paul Baumann, who is *so far* practically unknown to the official science, and who can find consolation in the idea that the inventor of the wheel will never be known at all. The problem of simple arrangement of all this is just a matter of technique.

You cannot help, thinking that all these might be just tricks. The history of *perpetual mobile* abounds in evidence of downright swindling and frauds, and not a single positive result before, and who can guarantee that the information given above will not prove to be another swindle?

First of all, if all the people always piously believe in the unquestionable stability of the energy conservation law, there will never be any progress in this sphere, and it is then unexplainable how man got down from the palm at all. Secondly, to justify the proposed rebellious position, the following idea comes in mind: if 30 years ago somebody had told the authors (who were then already professors) that at the beginning of the next millennium they would deal in such research, it would have seemed not only a silly joke, but an absolutely impossible thing as well. But, as Voltaire said, "He is silly who does not change".

In conclusion we wish to express with certainty that the time of theoretical recognition and of practical universal using of overunity devices will come soon and become the epoch of new energetics. The people of our planet will regret that so much oil, coal and gas was burned causing terrible ecological losses.

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## KOZYREV-DIRAC EMANATION.

### INTERACTION WITH MATTER and METHODS OF DETECTING

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*In this paper the authors show the possibility of creation of a new kind of emanation. The magnetic monopole beam can be made in space as a result of focusing of some natural substance. Special devices based on the Moebius band elements make the given focusing. This emanation is able to magnetize graphite and organics, decrease the radioactivity, and influence the oncology diseases. The time reverse technology is realized in such devices.*

Experimental data, which allow making a conclusion about existence of previously unknown emanation, are

presented in this report. Here are descriptions of experiments and methods of measurement. The effects of interaction between new type of emanation and matter have been obtained.

Till the present moment theoretical physics didn't pay attention to the nonoriented configurations and spaces. The reason of this situation is the fact, that from the philosophic point of view it is not possible to determine and locate the area of the nonoriented topological structures in our world. We (eight scientific teams) joined our forces and we needed more than 30 years to solve this problem by an experimental approach.

The fundamental tenet of the casual mechanics developed by Kozyrev can be formulated as follows. There are two types of energy in the Universe. The positive or «right» energy acts as a factor of the entropy increase. The negative, or «left» energy tends to decrease the entropy, i.e. it acts as a factor, which regulates the entropy increase. The «right» energy is transformed to the «left» one and this fact may be interpreted as a course of time from the past to the future. When the energy is transformed from the «left» to the «right» form, time is reversed. Kozyrev supposed [1] that through revolving of a body together with a

6. Activation by nuclear magnetic resonance;
7. Activation by electronic paramagnetic resonance;
8. Activation by electrochemical force.

All these methods can be used as possible way to high efficient energy systems. Gerlovin wrote: "Usually 1, 6 and 7-th methods of structural activation are realized in catalysis simultaneously. Besides, catalysis differs from macroscopic methods because it has the most minimal distances from the sources of activator fields to the activated molecules. And finally, an active participation of force fields created by nuclei of atoms and significantly more active participation of disturbed EPV is possible in catalysis. That's why catalysis is the most effective method of structural activation. The detailed account of this method exceeds the limits of this article and we can only annotate it." [1, p.333]

Information stated above is only a small part of the questions appeared under consideration in Gerlovin's theory of fundamental field (TFF). Other important questions should be considered with a new experimental data.

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# Antigravitation Force and Antigravitation of Matter. Methods of its Creation

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## Part I

For a long time there is an opinion in physics about antimatter as a possible source of antigravitation, but the researches on this subject came into a dead end. The existent presentations and formulas forbade the conclusion about antigravitation, but our conducted investigations brought us to the possibility to get antigravitation of substance and to the paradoxical conclusions concerning the next:

1. Two types of space exist:

- a) The Absolute space
- b) The Relative space

2.a The Gravitation Field is the relative space, which has accelerated motion, directed to the center of a planet.

2.b The Antigravitation Field is the relative space, which has accelerated motion, directed from the center of a planet.

3. Gravity force does not depend on mass of a body! The mass can be presented in three versions:

- a)  $m_k$  – mass as amount of atoms.
- b)  $W_{m_A}^e$  – electronic-atomic energy in mass.
- c)  $W_{m_G}^m$  – mechano-gravitational energy in mass.

On the basis of the stated notions we offer to revise the essence of force not only in Coulomb's formula, but in Newton's formula too.

$$F = K \frac{q_1 \cdot q_2}{R^2} \qquad F = P \frac{m_1 \cdot m_2}{R^2}$$

It is well known, that mechanical energy can be bringing in electrostatic charge, where mechanical energy runs (turns) into energy of electric field, where

$$\text{(mechanical energy)} \quad F \cdot R \rightarrow \frac{E_2 \cdot V_{m^3}}{2} \quad \text{(electrical energy)}$$

Similarly it is also possible to insert mechanical energy into mass of a body. As the result, the mechanical energy will turn into energy of gravitational field, where

$$\text{(mechanical energy)} \quad V \cdot F \cdot t \rightarrow \frac{g^2 \cdot V_{m^3}}{2} \quad \text{(gravitational energy)}$$

Since the volume of the Earth is constant, the acceleration of gravitational field will be increased.

It should be logical to expect, that when removing the mechanical energy from mass the inverse process will occur, that is to say acceleration reduction of gravitation field will occur.

In his works I. Newton affirmed about existence of two spaces:

The Absolute space - is an immovable non-rotatable space, which represents a limited cube, with our planet in the center.

The Relative space – is a movable space. It can move with acceleration in the absolute space.

*Editor's note: In aether conception this means two parts of aether: some part is involved into the motion with the mass, but another part of aether is immovable.*

The main mistake in search of aether consisted in the following: Maikelson's experiments were aimed on



search of relative velocity between bodies and space. However, it was the **relative acceleration** between bodies and space that was necessary to search for.

To quote the conclusions of I. Newton: "Body can keep the quiescent mode or mode of rectilinear uniform motion ..." By this, he postulates, that the relative linear velocity between solids and space does not exist. But we know that for rotation it exists (the famous experiments with revolving pail of water).

**The gravitational field is the accelerated "falling" relative space, which represents a spherical form.** If relative space moves, thus the question appears: where does it move? There is only answer: it moves in the absolute cubic space.

In Einstein's theory there is notion of unified and curved space in gravitational field, but the contradictions appear here, and on concerning that N. Tesla writes: "Only by presence of force field it is possible to explain the observed motion of celestial bodies, but thus the hypothesis of curvature of space is not necessary. The whole scientific literature on this subject is futile and doomed on oblivion". [1]

The fact that gravitation is the accelerated moving relative space can be proved by observation of accelerated moving rocket, where the acceleration in rocket is equivalent to the acceleration in gravitational field. Accelerated movement of rocket is relatively, that allows speaking about either acceleration of rocket motion in immovable space, or accelerated motion of space in immovable rocket!

The anti-gravitational field is the relative space, which has accelerated motion from the center of a body (for example: rotating cylinder, Earth satellite and etc.) But it is possible to create the model of anti-gravitation without rotations. On the basis of analogy between mechanical and electric energy comes to conclusion that gravity between bodies does not depend on mass of the body, but on mechanical-gravitation energy, contained in this mass, which is possible to contribute or to extract from. **Therefore, this is the internal gravitation energy.**

## Part II

The "Mass" can be considered as a measure of three different conditions of matter:

$m_k$  - as a measure of amount of atoms, representing a "framework" or "container", in which two types of independent energies are concentrated.

$W_{m_A}^e$  - as a measure of electric energy, which can be either accumulated or extracted, and it have a "compressed" form.

An example of accumulation of electric energy in mass is a big cylinder, rotating with linear velocity, close to velocity of light, in this cylinder the mass of electric and magnetic fields of atoms increases. There are another

possible ways to contribute and to extract the said energy from mass.

And finally  $W_m M_G$  is the mass, which can be a measure of mechanical energy, or it can be either inserted or extracted from the matter (it can be identified as the gravitational mass). This gravitational mass is what we put our attention on, because it affects upon gravitation and it is able to create antigravitation.

"In his time N. Tesla worked on more general problem, which is the problem of matter and energy. And he has found, as he believed, the new physical principle, on the ground of which he brought forth his gravitational theory that was named dynamic gravitation. But he did not tell about it until almost the end of his life". [2] **Really, dynamic gravitation is the energy of motion.**

Let's take the following indications:

$V$  – mechanical velocity

$F$  – force

$t$  – time.

In this case the product  $W = V \cdot F \cdot t$  has the dimension of energy. Hereinafter, let's take

$I$  – strength of electric current

$U$  – difference of potentials

$t$  – time.

**Then  $W' = I \cdot U \cdot T$  has the dimensional of energy.**

Thereby,  $W \sim W'$  that is to say, the following products are accepted as equivalent:

1.  $V \cdot F \cdot t \sim I \cdot U \cdot T$

2. In previous materials it was reported about untraditional way for accumulation of energy, under the condition, in which at constant current  $I$  the product  $q = U \cdot t$  will depend on amount of inserted energy in unchangeable circuit  $L = \text{const}$ , in which the energy can be accumulated by untraditional way not only in electric capacity, but also in inductance.

Similarly the energy can be accumulated by untraditional way in a moving body, under the condition  $V = \text{const}$  and  $m_k = \text{const}$  (the product  $qr = F \cdot t$  will depend on inserted energy and have unlimited value). **Exactly this charge will create the powerful gravitational fields.**

3. Let's take:  $F$  is mechanical force,  $R$  is distance. Then the product  $F \cdot R$  has the dimensionality of energy. For the uniform electric field the product  $E_a \cdot \frac{E^2 \cdot V}{2}$  also has the dimensionality of energy. In this case  $E_a$  is constant,  $E$  is intensity of electric field,  $V$  is volume. Thereby,  $F \cdot R \sim E^2 \cdot V$ . Similarly,  $V \cdot R \cdot t \sim g^2 \cdot V$

**We have received the correlations of resemblance for heterogeneous physical values, on the ground of which the following physical experiments can be offered:**

On the grounds of the above-mentioned analogies it can be assumed that the accumulation of “compressed” energy is possible in mechanics, as well as in electricity. Since the velocity is relative, that the mass can have zero velocity relatively a observer, who moves with this mass, but the force field will remain unchangeable, since it depends on already invected mechanical energy.

Let's note that:

When the “compressed” electric energy is accumulated, the power field does not change.

When the “compressed” mechanic energy is accumulated, the power field increases.

**Now we have come to the amazing conclusion that the gravitational force does not depend on mass of matter, but it depends on mechanic energy, which is included in this mass.** This energy is unstable and at contact with land it is disappearing, and at zero gravity it can be saved for a long time.

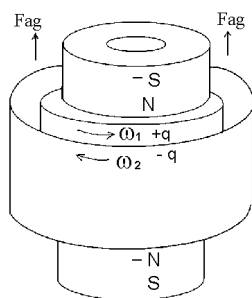


Fig. 1 The first way to obtain the antigravitational force.

1. The magnets are not revolved.
2. The cylinders of charged capacitor are revolving in different directions.

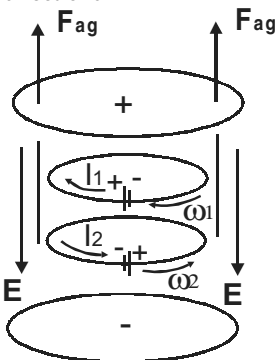


Fig. 2 The second way to obtain the antigravitational force.

1. The capacitor plates are charged and not revolving.
2. The current circuits are revolving in different directions.

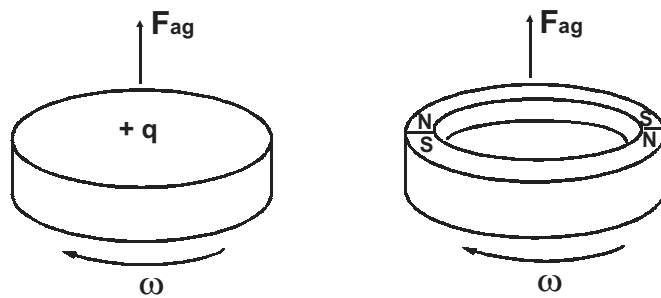


Fig. 3. The third way to obtain the antigravitational force

- a) electric
- b) magnetic

1. The disk and the ring are made from electrical current conductive material.
2. When these disks rotate, the currents, which emit the mechanic-antigravitational energy in the manner of heat, are formed there.

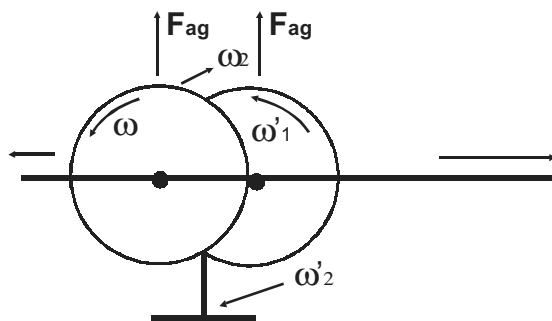


Fig. 4. The fourth way to obtain the antigravitational force.  
Mechanical method.

1. This is an extraction of energy from matter. It was reported in details on the 10 international symposium in Volgograd, Russia.
2. The difference with electric circuits is that it is possible not only to extract the mechanical energy, but also to insert additional energy in the system.

## References

1. Magazine Inventor and Rationalizator, Russia, #9, 1979.
2. Magazine Inventor and Rationalizator, Russia, #9, 1979, p.28

## The Capacitor, which has the Energy of an Atomic Bomb

(Review of Anatoly K. Gaponov's research by Eugenie and Marina Golomolzins)

Is it possible to place a pail of water into a one-liter jar? At the first look the answer is obvious: certainly not! However, the inventor from Novosibirsk, Anatoly Gaponov thinks differently. He does not “press” water,

but electrical energy, placing an energy equivalent of atomic bomb into ordinary electrical capacitor.

**Everybody using ordinary batteries knows its defect: they need frequent recharging. Gaponov's capacitor is slightly smaller than a matchbox. Just come home by electrical automobile, take out the capacitor from engine, and then put it into the pocket. For home needs you can just insert the capacitor into plughole to power the light, boiler, and TV system. In general, each electronic device can have its own capacitor, then an electrical wiring is not necessary. After one**

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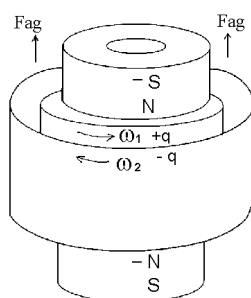


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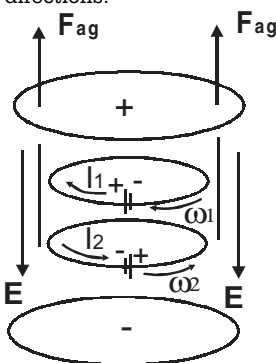


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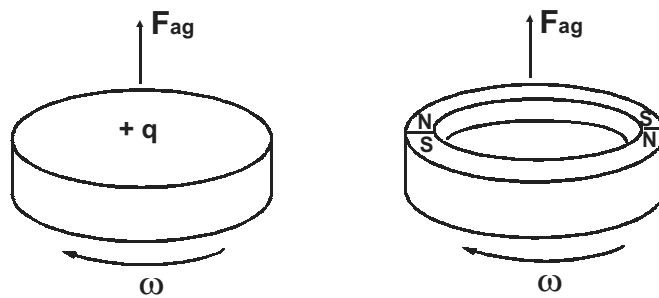


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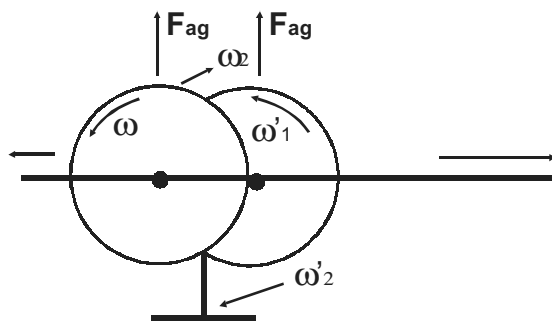


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**or two years you will just have to come into electric service station and charge your magic capacitor like a gas balloon. Meantime, this research work began from hypnosis.**

Anatoly Konstantinovich Gaponov (by birth from Kaluzhskaya region) is Ziolkovsky' countryman. In his youth Gaponov was brought by fate into Sakhalin, where he showed hypnotic abilities. As an inquisitive person Gaponov had organized a research group, started experiments and soon he understood that human brain had incredible possibilities.

A mental prick was made distantly to the hypnotized man, and he uttered a cry of pain. The ability to see people through, to define and to avoid organism's faults, was revealed in a hypnotic trance. It was possible to inspire pleasant emotions, to force "watching" a film on the given subject, as if on the screen. An uneducated person became an erudite, as if being connected to a certain global information database. Thus an idea to make an amazing experiment was appeared.

In one of the experiments Gaponov hypnotized the person with four classes education, and asked, if it was possible to transmit the electric current without wires? The hypnotized person gave the answer, that it was possible. For that it is required to convert the electric energy in x-ray radiation. And what afterwards? Afterwards it is required to focus that rays. By what? By the lens made from quartz glass, gold coated. It was a miracle! The person told about things that in usual condition he had no idea of! The information was received from somewhere outside.

Further quite an amazing thing has occurred. Gaponov asked the hypnotized person, if it was possible to intensify the abilities of hypnotist's brain?

He answered, that he could. "He turned me round and stared at the back of my head, - recalls Anatoly. - And suddenly the smile began to tear my mouth. I could not do anything with myself. When my mouth was sprawled literally from ear to ear, the hypnotized person in some inhuman voice declared that experience could not be continue since the cerebral hemorrhage would occur. I was hardly able to give the order to stop the experiment".

Thereby, the experiments with hypnosis gave the beginning to the thirty-years period of inventions in the field of accumulation and transmission of energy. After the return to native Kaluzhskaya region, Gaponov was occupied with physics, development of logical thinking and became the town champion in chess.

The necessary books fell into his hands by themselves: some time a certain acquaintance gave it to read; another time he found the last copy in a bookstore. As a majority of self-taught inventors, Anatoly preferred practical experimentation. In quest of laboratory for realization of his own ideas, he moved to Novosibirsk. **As a result, in 1980 Gaponov has made experimental system for compression of energy.**

From the school Physics we have known the notion of "electric arc" – it is a small blue lightning between two electrodes. Gaponov has tamed this lightning in such a way, that having drawn apart two wires, which executed the role of electrodes, by hands and got the arc by length up to half meter. Anatoly confirms that in principle, it is possible to create an arc of any desired length under any amperage.

**One of the experiments found out one more enigmatic characteristic of electric discharge. During electric photography of arc a person happened to be between the camera and the system. On typing pictures, the researchers have found with surprise, that the electric arc was perfectly seen through the person. That is to say, it created the invisible field, for which material object was not an screening obstacle, and which was fixed on the film.**

**The further experiments with electric arc have allowed to get a new source of energy, as well as to open the possibility of setting light and sound on fire!** Just imagine, you ring up a bell, it's sound waves spread at once in all directions, and then flash up with bright blaze.

*(Editor's note: this experimental facts are rare modern evidences of possibility to create longitudinal electric waves. It is clear analogy here with sound waves in air since they are longitudinal waves also. Alexander V. Frolov)*

**When the problem of energy source was solved, Gaponov turned to the problem of energy accumulation. According to Gaponov, he has proved experimentally the possibility of charging of an ordinary capacitor with any amount of energy. This statement sounds paradoxically: how it is possible to place the unlimited amount of contents in limited volume? However, this is not a simple way.**

**Gaponov believes that energy "placing" occurs not in space, but in time by means of his system!** In what way? Imagine, that you fill one-liter jar with water. But already after an instant the water-filled jar is in past, and that present one is once again ready to be filled. And so ad infinitum. Water as if it fills a certain "time reservoir", and a jar is just a neck of this "time reservoir".

*(Editor's note: This method is described in other articles also but usually it is pure mathematical discussion about Minkovsky space-time and theoretical proposals. Gaponov's experiments are realization of fantastical idea to take power from the time flow, i.e. from Past or from Future to get over-unity in Present space. Alexander V. Frolov)*

**"It is possible to demonstrate one more example, - Anatoly Gaponov adds. – Let's charge the capacitor with the expectation, that it will supply the light bulb**

for one second. Thereby, on the Earth this light bulb will be on only for an instant. But if the same capacitor with light bulb is placed in rocket and dispersed around the Earth at the velocity, closed to velocity of light, time on the board of rocket will be so slowed that the light bulb on rocket will be glowing infinitely long for an observer from the Earth. It means, that in any case it is the same energy quantity, but in one case it's action is sprawling for a second, and in another one it is sprawling for eternity! It is possible to say, that in my system I have created the condition corresponding to this hypothetical rocket".

The system for accumulation of electric energy could be charged by ordinary wall plug 220 VAC. Time period of charging is different and depends on the certain scheme of the system. By the way, sea electric slopes are the certain natural analogues of such capacitor. Some elements of internal device of these sea creations reminds the "pump" elements for placing of electric energy into "temporal jar".

Finally, the third Gaponov's invention is the system for transmitting of energy without wires. As well as in two previous cases, there is an experimental device. Anatoly Gaponov speaks that he has succeeded in getting the essence of experiments for transmitting of energy, which were conducted by Tesla.

It is clear, that the main advantage of this method is an absence of wires and losses of electric energy. The electricity could be transmitted directly into any point, where receiving equipment placed, let say from Kaluga to Sahara. However, this is not so interesting for anybody, since for the present day Anatoly Gaponov's inventions don't have demand.

" The first system was created twenty years ago", - says Mr. Gaponov. - "Now I am fifty five, but things have not budged an inch". He adds dreamily: "Eh, if only I had a laboratory and some money..."

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## Gritskevitch's Hydro-Magnetic Dynamo

Oleg V. Gritskevitch

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Russian Academy of Natural Sciences

*Editorial: The article presents construction and operation of Oleg V. Gritskevitch's hydro-magnetic dynamo, which is an example of very powerful new energy system. The prototype in Armenia has been produced over 1500 KWtts power during several years.*

***The author was born on 14 August 1936 and grew up in Vladivostok, Russia. He is married and has a son Boris. Gritskevitch is a physicist by education. He worked in the Far - East branch of the USSR Academy of Sciences. Since 1985 he has been working independently as an inventor. He has more than 70 patents on inventions ranging from household engineering up to high technologies, which he has been trying to apply in our country and met big difficulties. After numerous attempts to receive the patents the author was convinced that outflow of the information occurred. Therefore he has received the state certificates as on know-how (on a French way of patenting), for all his inventions.***

### Introduction

During the Institute for New Energy 1999 Symposium, I lectured on my hydro-magnetic dynamo. This paper is my attempt to explain the construction and operation of my dynamo.

To fool investigators of my secrets, I have an occasion provided misleading information. For example, the drawing accompanying the Russian patent referenced below shows a cylinder across the toroid to fool readers. The real dynamo only has the toroid without the cylinder. Even its name "hydro-magnetic dynamo" is somewhat deliberately misleading.

I have some familiarity with the new energy field. Nearly all purported new energy devices are fairly small electrical generators. The dynamo may be the only new electrical generator which most nearly meets all the requirements of an ideal large-scaled electrical generator. My dynamo really is the single most valuable invention the world has ever known.

Alexander V. Frolov of St. Petersburg recommended me to contact with Dr. Patrick Bailey, Institute for New Energy since Pat has lots of contacts who could possibly help me with patenting my invention of a new source of energy in USA.

I conducted the work on the theory and creation of the electrostatic generator-converter «Hydro-magnetic dynamo» about 20 years. (See dynamo history below.) The first primitive equipment was created when I worked in Academy of Sciences. During that time various changes were introduced in the generator and in the theory of its work. It is now possible to manufacture, install, and apply it in industry.

For the first time I made the public report on this work in 1991 on a symposium in Volgodonsk city. The report received the positive replies and reviews of the experts of a nuclear industry in USSR. The same year I was accepted in International Nuclear Society. In these years I offered development of this technology to different state bodies and private enterprises. But there was the only answer: "It is very interesting and perspective project, but there is no money for it".

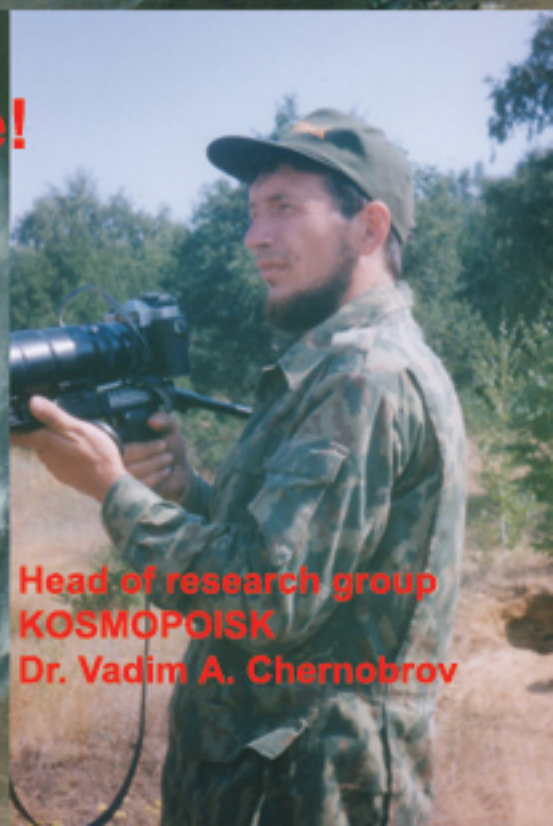
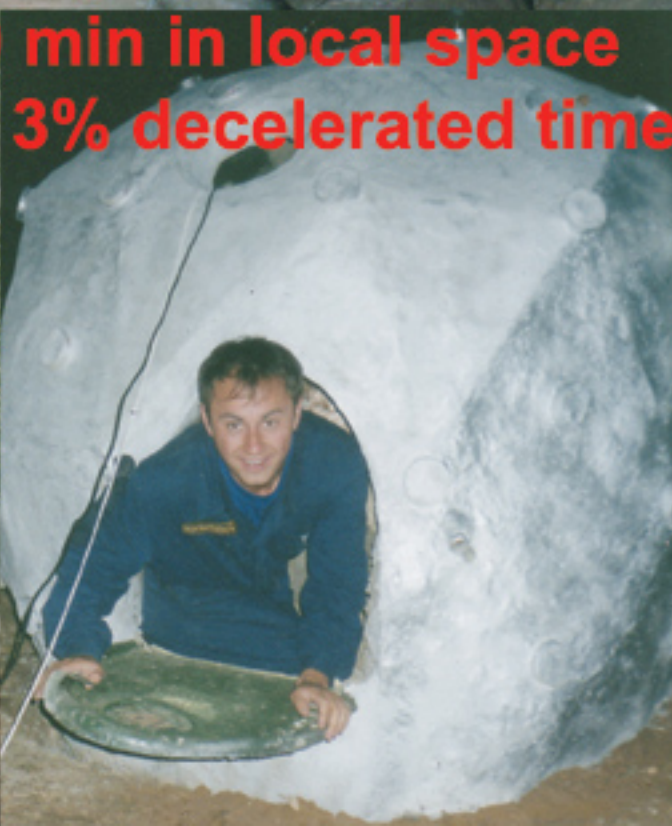


# New Energy Technologies

Research on advanced propulsion systems and new energy sources  
Published by Faraday Lab Ltd #3 November -December 2001

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of 3% decelerated time!



Head of research group  
KOSMOPOISK  
Dr. Vadim A. Chernobrov



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# *Electrical hydrogen generator 150 KWt output power !*



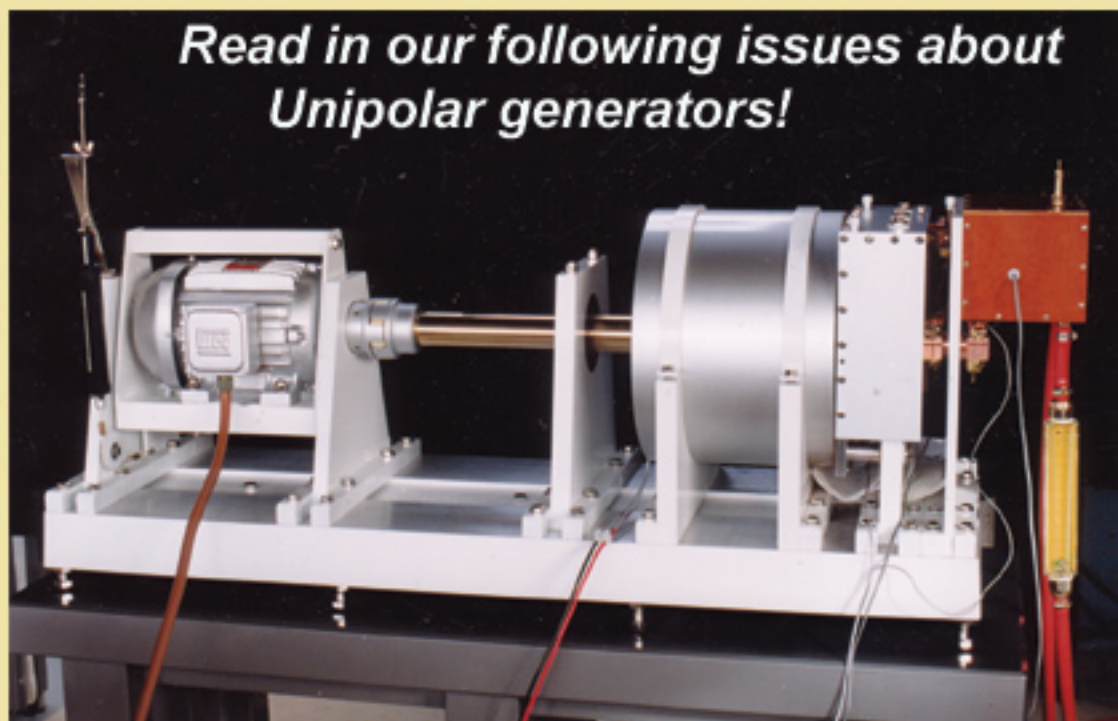
*Electrical hydrogen generator is realized by V.Studennikov and G.Kudymov as a prototype of 150 KWt heat power. Authors create an artificial gravitational field by means of rotation. With this they produce cheap hydrogen. Read more in this issue.*

*The excessive power, which is produced by this generator is compensated by environmental heat!*

## *New energy research in New Zealand*



*Dr. Ashley Gray*

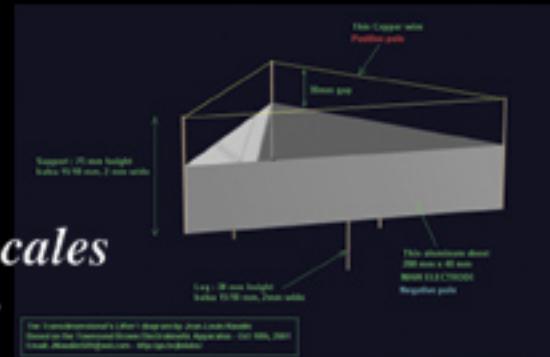


*Read in our following issues about  
Unipolar generators!*



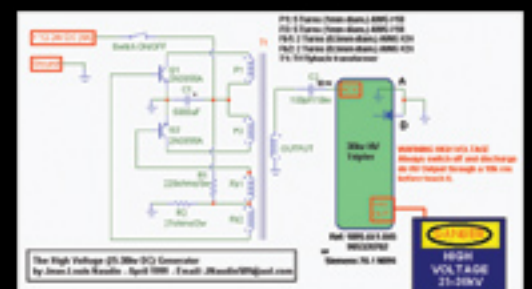
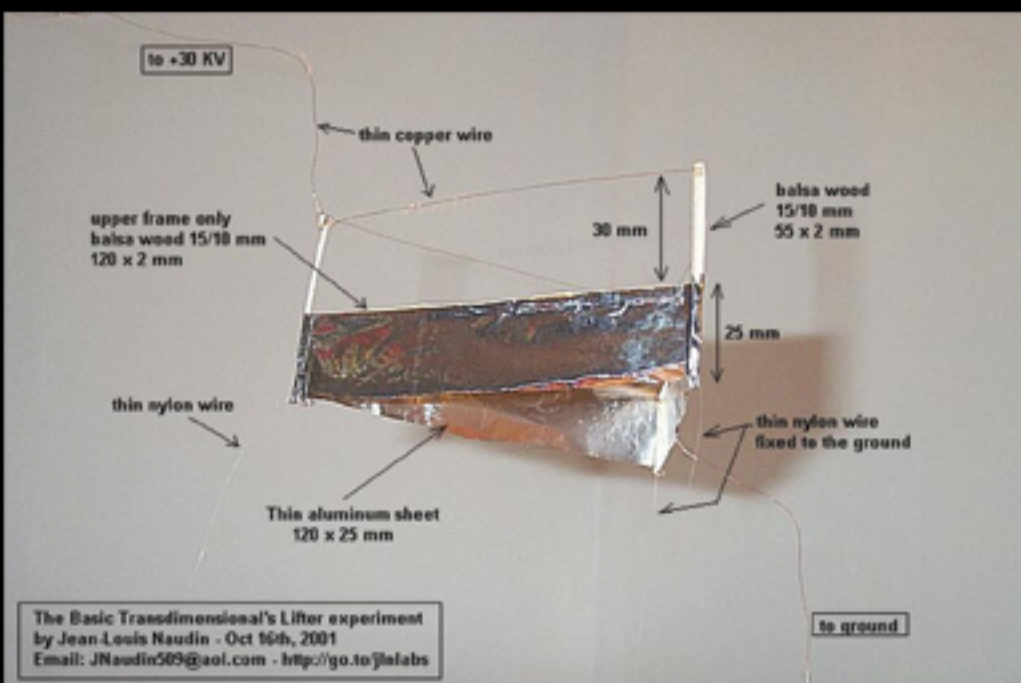
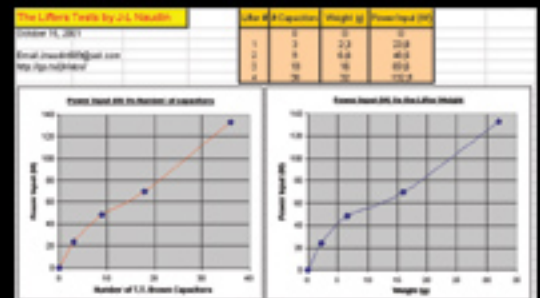
# Electrokinetic experiments

*Simplest asymmetrical capacitor by Jean-Louis Naudin, France named as "Frolov's Hat" was tested on the scales in 1999. The name is related with Alexander Frolov's experiments on this topic.*



*US Patent N 2,949,550 Aug. 16, 1960 and N 3,187,206 June 1, 1965, author T.T.Brown.*

*Now Naudin's "triangle lifter" version can fly and the next step is to create an onboard high voltage power supply for demonstration of autonomous flight.*



The Basic Transdimensional's Lifter experiment by Jean-Louis Naudin - Oct 16th, 2001  
Email: JLNaudin569@aol.com - <http://go.to/jlslabs>

### NEW ENERGY TECHNOLOGIES #3

1. Time is a Mystery of the Universe, **Dr. Lavrenty S. Shikhobalov**, St.Petersburg, Russia
2. Experiments with a man in the Time Machine. **Dr. Vadim Chernobrov**, Moscow, Russia
3. Time is a physical substance, **Dr. Kirill P. Butusov**, St.Petersburg, Russia
4. Experimenting with time, **Prof. Velimir Abramovich**, "Time Institute", Rotterdam, Holland
5. Practical application of time rate control (TRC) theory. **Alexander V. Frolov**, Russia
6. Irving Langmuir and atomic hydrogen. **Dr. Nicholas Moller**, Greece
7. Hydrogen energy. **Studennikov V.V., Kudymov G.I.**, Russia
8. About strange effects related to rotating magnetic systems. **M. Pitkanen**, Finland
9. The transdimensional's lifters experiment. **Jean-Louis Naudin**, France
10. On the great constant 137.036. **Dr. Anatoly Rykov**, Russia
11. Inertial propulsion drives. **Boris D. Shukalov**, Russia
12. Technical design of antigravitational spacecraft "Silver Cup". **Eugeny Kovalyov**, Latvia
13. Gravito-inert mass. **J.A. Asanbaeva**, Republic Bashkiria
14. Propulsion from relativity effect of inertial force. **Takuya Ishizaka**, Japan
15. Physical properties of axion fields. Influence of axion field on hardness of pearlitic cast iron. **Alexander Shpilman**, Kazakhstan.
16. On the significance of conical shape of rotor in Clem's generator. **Alexander V. Frolov**, Russia
17. On history of cold nuclear fusion in Russia of 1960s. Review **Alexander V. Frolov**, Russia

At the present moment in aerospace it's technically possible to realize only the jet propulsion or use the inertial forces (for an example Tolchins' or Savelkaevs' inertial machines). But they are non-efficient and slow methods. (We'll pay no attention to exotic methods of propulsion: the space sail-ship based on the Sun-wind etc., because they are not promising enough.) The jet propulsion unit or inertial machines need on-board energy source, which is limited. That is a problem for aerospace systems.

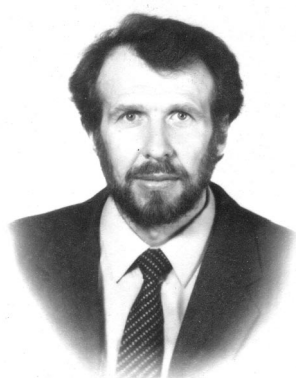
The first simple and rough illustration of the new principle of motion is a small experiment. Let's take a piece of soap and press it in the palms strongly. Incidentally, if the pressure of the palms is even, the soap will be left in the state of immobility. If the pressure

is not even the soap will slip out of hands with a high speed. It is most important to understand that the soap will not spend any energy. We can press and press it as long as we wish, and the soap will keep slipping out.

The aerodynamic (hydrodynamic) force is the analogous example. It's a **reaction of environment (the space) on the shape** of a moving wing. The appearance of a rarefaction above the wing creates the lifting capacity. It should be noted that environment creates the force itself and the wing doesn't expend any energy except for the translation motion.

The third example is an appearance of the buoyancy in water. It's also a **reaction of environment (the space)** that depends **on the density of an object's matter**.

## Time is a Mystery of the Universe



Dr. Lavrenty S. Shikhobalov

St.Petersburg, Russia lavr@niimm.spb.su

Milleniums pass, but we still do not know, what is time. We hardly have another such notion, which has so different and even alternative conceptions. Here are some widespread conceptions of time:

- *There is no time; it is a subjective sensation.*
- *Time is an objective reality, which is a form of matter existence as space.*
- *Time is only a comfortable method to describe the motion of bodies and processes, which take place in the World.*
- *Time is a cause of motion of bodies and passing processes.*
- *Time is absolute, it does not depend on anything and it is similar for all systems.*
- *Time is relative, it is own for every system.*
- *Time is a measure of strictly periodic (cyclic) processes, which are realized in stationary systems only.*
- *Time is a measure of changeability of systems; time does not pass in stationary systems.*

- *Time is reversible (because basic equations in physics do not change with change of sign of time).*
- *Time is essentially irreversible (because all human experience is an evidence that the future differs from the past, and that a movie, which was started counter, is not realistic).*
- *Time can be described mathematically as a scalar variable quantity, which changes equally in all points of three-dimensional physical space.*
- *Time can be described as one of directions in four-dimensional variety, which is called space-time, at that this direction, generally speaking, is own for every physical system.*

In general, the situation about the problem of time now is similar to the situation some centuries ago. It is well illustrated by the words, which are attributed to Augustine Blessed. They sound like this: "While I do not think about time, I know that time exists, but when I begin to think about it, I stop understanding, what it is." Situation related with the notion of time is complicated by the circumstance that this notion is widely used by representatives of various fields of knowledge (biologists, geologists, historians, philologists, and psychologists). With this many authors put their own sense in the notion of time. Often they do not want to take the trouble of explanation, what do they understand under the term of "time".

Let's consider some basic theses concerning time, which were based on achievements of philosophy and physics, sciences, where problem of time is investigated most deeply and in full. The most of known conceptions of time can be kept within two principally different conceptions of time, those are relational and substantial. These conceptions differ in interpretation of relation of time and physical matter (substance and physical fields belong to physical matter). According to relational conception there are no time itself in nature, and time is only a relation or system of relations between physical events. In other words, time is a specific manifestation

of properties of physical bodies and changes occurring to them.

Another conception, substantial one, vice versa supposes that time represents an independent phenomenon of nature; it is a substance of a special kind, which exists along with space, substance and physical fields. Relational conception of time is usually associated with the names of Aristotle, G.V. Leibnitz, A. Einstein. The brightest spokesmen of substantial conception of time are Democritus, I. Newton and one of the modern scientists N.A. Kozyrev.

From the philosophical position both conceptions of time are analyzed in the monograph [1] in details. It is shown in this monograph that each concept has its own merits and demerits, but with the modern extent of their development not one of them describes all properties of time. In relation with this fact we made a conclusion, that not one of these conceptions has advantages to each other (though we can mention that substantial conception is more adequate to the materialistic ideology). The analysis of relational and substantial concepts is made in the article [2] from positions of physics. A conclusion that modern physics including theory of relativity also does not give a ground to prefer one of these conceptions is made in this article. Besides, a wide range of fundamental questions connected with time has no answer. That's why both conceptions of time need further development.

Let's note the difficulties on the way of development of these conceptions. A complexity of generation of physical theory of time on the basis of relational conception lies in the following. Since relational conception assumes that time is fully determined by physical matter, then time in the frames of such theory should be expressed in some characteristics of processes, which take part in physical systems. But then the notion of process itself should be defined before introduction of notion of time and independently on it.

However, we hardly can imagine, how we can formulate a definition of process without paying attention on the notion of time, in particular, without using such characteristics of process as its duration or speed of its passing. Let's note that analogous situation could appear during the development of relational conception of space. Here we need to formulate a definition of physical system before introduction of notion of space, i.e. without mentioning even of such simplest characteristic of system as its spatial size. It is not clear how we can do it.

An essential difficulty during the construction of physical theory of time on the basis of substantial conception lies in the need to answer the question: "How does time substance transfer its properties to physical matter?"

The author of this article does not know the works, in which we can find a fact of successful overcoming of the above mentioned difficulty being on the way of

development of relational conception of time. Researchers holding this conception usually concentrate their attention on description of methods to measure time and do not clear up the essence of time phenomenon itself in details. Let's remind that the term "time" has two different senses. On the one hand it means a certain phenomenon of nature (time-phenomenon). And on the other hand it means a quantitative characteristic of this phenomenon (time-parameter). Since the clocks as any physical device is an element of physical matter, then it seems to be natural that we can generate a theory, in which the readings of clocks giving the values of time-parameter are expressed by some properties of physical matter. However, even the successfully construction of such a theory (which can be called the relational theory of clocks or relational theory of time-parameter) does not mean a binding correctness of relational conception of time, since this theory does not tell anything about the essence of time-phenomenon. Let's underline in repetition of [3] that a skill to measure some value is not a guarantee of understanding of nature of physical phenomenon described by it.

The most obvious case to illustrate it is the case with the phenomenon of heat. The temperature of bodies was measured by means of thermometer as in the times when existence of hydrogen was recognized or after the creation of molecular-kinetic theory of substance. Thus, we can state that there is no real progress in development of physical theory of time on the basis of relational concept yet.

As opposed to this theory a certain development took shape in substantial conception of time. First of all it is related with the name of Saint Petersburg physicist Nikolay A. Kozyrev (1908-1983). Working on the problem of the source of stellar energy, N.A. Kozyrev advanced a hypothesis on presence of other properties of time along with duration. These are the properties, which give time a possibility to influence events in the World. The scientist called these properties physical or active, and the theory to describe them he called "causal mechanics" (such name was stipulated by the fact that according to scientist's ideas physical properties of time manifest in cause-effect relations). N.A. Kozyrev made a huge theoretical and experimental work in development of his hypothesis and expanded it with a cycle of astronomical observations. Main results of these researches are stated in score of his publications. Most of them were included in the collection of scientist's selected works [4]. Unfortunately, N.A. Kozyrev didn't have time to finish the development of his theory. The scientist showed a possible way to study time and passed a significant part of this way himself.

Followers of the scientist make the further advance on the way outlined by N.A. Kozyrev. In particular, in the work [5] a notion of spatial-time substance is introduced to the development of Kozyrev's ideas. The latter represents a four-dimensional variety, which has geometry of pseudoeuclidian space by Minkovsky (due to this fact it matches all theses of the theory of

relativity). Besides, substance has certain physical properties. It is supposed in the given model that substance and fields, which form our world, are not independent physical realities, but specific structures of such substance (like concentrations, vortexes, etc.) and as a whole our World is a single wave like solitary wave, which propagates through substance in the direction from the past to the future. In frames of the given model we can immediately solve the question formulated above: how the time substance transfers its properties to the physical matter? Since substance and fields are particular states of substance itself, then there is no requirement of special transfer of properties from substance to matter and fields. These objects initially have properties, which are common with substance. In such model the notions of the course of time and its direction get a clear sense, it is easy to prove the statement on symmetry of the World, which is analogous to the known CPT-theorem of quantum theory of field. We have a possibility to show that mirror asymmetry of the World and asymmetry of it regarding particles and antiparticles can be the consequences of spatial-time substance acting upon the World. Development of the given notions was a construction of a model of electron as a structure formed by such substance [6,7]. This model describes the electromagnetic field of arbitrarily moving charge in details (without an application of Maxwell's equations).

Up to the present time many results of theoretical, laboratory and astronomical researches by N.A. Kozyrev found a confirmation and development in the works by other specialists, which used different approaches. Some of these works were published in the collective monograph [8] and in two special issues of "Galilean Electrodynamics" journal [9]. The work of Russian interdisciplinary seminar on temporology permanently acting on the base of Moscow State University (head of this seminar is A.P. Levitch) is devoted to the studying of time phenomenon. Materials of the seminar are placed at: [www.chronos.msu.ru/SEMINAR/rindex.htm](http://www.chronos.msu.ru/SEMINAR/rindex.htm).

A flow of information on researches, which work out Kozyrev's ideas has been growing during last years; and it is the evidence that this direction of studying of time founded by this outstanding scientist has perspectives. At the same time we should recognize that many problems concerning time are not solved yet, and time remains the mystery of the Universe.

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## N. A. Kozyrev's Ideas Today

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(Editor's notes by Alexander V. Frolov)

### Introduction

Nikolay Alexandrovich Kozyrev's ideas amaze our imagination. They are full of optimism. For the first time in physical constructions we can see vital, creative principles of the World, which are able to oppose to its heat death foretold by traditional physics to be inevitable.

N.A. Kozyrev came to his ideas by the analysis of the observed data about luminance, masses and sizes of

stars. This analysis brought him to a conclusion that the processes of thermonuclear synthesis cannot serve as a main source of stellar energy. **The scientist made a hypothesis that Time is a source of stellar energy.** According to N.A. Kozyrev, Time has active (physical) properties besides its passive property of duration. Time effect the events in the World due to these active properties. These properties manifest in cause-effect relations and express themselves in the counteraction to the usual course of processes, which lead to the destruction of systems organization. Time influence is very small in comparison with usual destructive course of processes, however it is dispersed everywhere in Nature, therefore **there is a possibility of its accumulation.** Such possibility is provided in living organisms and massive cosmic bodies, in stars at first. **Active properties of Time can provide the interrelation of objects, when there are no usual physical effects between them. Time joins the entire**

# Experiments With a Man in the Time Machine

## Flights of the first temporonauts (time astronauts)

Dr. Vadim A. Chernobrov

111553, Moscow, Nagatinskaya 19A "KOSMOPOISK"

*In 14 years our Research association "Kosmopoisk" could build 4 laboratory systems of small size and small power to test the possibility of time course control (other two systems are under construction now). These systems allow changing the speed of physical Time (these systems are usually called the prototypes of the Time Machine, TM). Some experiments on acceleration and deceleration of Time were made. Besides the devices, we used insects and mice as laboratory animals. It took us a long time to make the experiments of a great scale (experiments with a man, in particular). The idea to build a system seemed to be very difficult. And it was very expensive to build it without State financing or any sponsor.*

*We had not got any of it yet, but there is always a way out.*

### Construction of "LOVONDATR-7"

*Editor's: the name LOVONDATR in Russian means a trap for musk-rat. This name historically belongs to all Chernobrov's designs, because the creation of the first TM was masked as a research project on creation of electromagnetic trap for musk-rats.*

In summer 2001, after several years of preparation work, "Kosmopoisk" began the assembling of the biggest system of this type. The works lasted about 3 months; about one hundred people took part in the construction and assembling of the Time Machine system. There were: a sphere of 30 cm with a double electromagnetic work surface (EWS) inside of the sphere of 1 meter with a double EWS, which was placed inside of another sphere of 2,1 meters with a triple EWS. Each EWS is a system of solenoids emitters, which create the convergent electromagnetic wave. *Editor's: see details about the convergent electromagnetic waves in the previous article of the autor.*

The entire triple construction (like Russian doll Matroyshka) was supposed to use for the experiments with mice. For the experiments with a man we took out the inner EWS and the medium EWS worked as a module of useful load (UL). The medium and external spheres have the doors for access of a man and load. Also they have a simple system of life support (in particular, there are systems of passive and active conditioning and removal of the condensate).

## Experiments with animals

During the testing of a new experimental system of TM we supposed the following succession: mice were the first to take part in experiments, then cats, and a man should follow them. A special delivery of 21 mice and then 10 laboratory mice from Moscow took place. During the experiments with mice, due to the anomalous zone influence and high temperature, most of mice (25 among 31) died. But after that other mice survived during the 2-hour experimentance, we decided to begin the next stage.

The volunteer was chosen in a month before the experiments. Purebred cats are not good for the experiments due to their susceptibility, or their loving owners were afraid to make them the victims. The cat that we needed came himself. One of the members of "Kosmopoisk" experiments Maria Lorenz was buying an ice cream, when an exhausted cat came from the nearest gateway for mendicancy. The future test animal was immediately called Plombir (sort of ice-cream) and brought to the research center. A month passed, and Plombir got his fit while eating the canned fish, caught all the mice in the surroundings and achieved the standard weight corresponding to his age. This old stager seemed to be the ideal candidate for our difficult experiments, which could have unpredictable results. But the cat was too experienced. When we turned on the system in a distance of 200 meters from the cat, he somehow felt its weak field (possibly, cats exactly felt this field, because the system worked absolutely quietly). The cat had a foreboding in our intentions and scratched Masha, his "foster mother" (it was the first incident with this very kind cat). Then the cat quickly disappeared in the forest. In the evening, when we turned out the system, the cat came back. In the following days the cat also run at the first seconds of the experiments and appeared immediately after the last seconds.

It was the very reason to take the dog as a first experimental animal. Just in few days before the first experiment the other volunteer appeared in the center. It was a black male dog of unknown breed with a white breast. We still do not know from what place in this wild forest he appeared. Due to his strange appearance (immediately after the decline of the young Moon) the dog got the name Lunokhod (Moon-buggy). This Lunokhod was put inside the system. During the boarding he was trembling with fear and he was not quite calm during the experiment. He had not patience for the planned 2 hours in the cabin, and he released himself and left the system at the 108 minute of the experiment.

Not taking into account the nervous stress, we didn't found any deviations in the health of the dog as well as in the health of the last group of laboratory mice. At 7 p.m. on August 26, 2001, after the final medical examination of the sleeping dog Lunokhod, we decided to start the experiments with a man.



## Experiments with a man

Selection of the first candidates to the experimental group was made beforehand from several tens of volunteers. We didn't know exactly the extent of physical and psychological stress, which will influence the man during the travel in Time. That's why we had the extended requirements to the candidates. Though, after some articles and books about these experiments were published, our research center "Kosmopoisk" got several tens of letters with a request to take part in experiments and even to "travel to the Past to make some corrections there", we decided not to work with the volunteers, which have no training. Only members of "Kosmopoisk" took part in this selection. These members were tested in the real expeditions with very extreme conditions.

***The first man to take part in the experiment was Ivan Konov. Possibly this name will go down in history as a name of the first temporonaut. It will depend on the fact, how this series of experiments will be historically evaluated by other scientists, but now we can be absolutely sure that it was the first attempt to travel the man in Time by means of the technical device, and it is a real fact.***

The first flight of a man in Time took place from 7.30 p.m. till 8.00 p.m. (August 26, 2001). Deceleration of the physical Time was registered during the half an hour of reference Time. The maximal decrease in the speed of Time constituted 3% regarding to the speed of reference Earth Time. Dr. V. Chernobrov, Head of the experiments, made measurements and control of TM from the outside.

Since after the Konov's flight, in this day and the next days some more people took part in the experiments on deceleration of Time inside the TM. They were: Dr. V. Chernobrov, V. Fokeev, A. Gavritchenko, D. Kurkov, M. Lorenz, L. Kuleshova, E. Golovina and others.

What did people feel during the travel in Time? Of course, this question was the most interesting. There were no experiments with measurement equipment or animals inside the TM, which could give the answer. Only one man among 9 people felt nothing. 5 men among 6 felt that their pulse became a little more rapid, easy giddiness, a little itch on the skin and other slight feelings. All 3 women felt a lot more range of emotions. They were: appearance of the "starry sky", "luminous vortex", "color spots" in their field of vision, twist of their body, astral leaving their body, "freezing of extremities", etc.

There were no unusual feelings among the people, who were outside of the system, except headache. **We should only say in addition, that we got the most surprising feelings before it was turned on, but not after it.** Here is a small list of observations: a significant amount of ozone in the air (it was felt in several hundreds meters from the TM), sudden appearance and the similar disappearance of radiation (it was registered

by devices), strange lighting effects (including the repeated lighting effects in the sky above the system), some strange sounds heard from the inside and other objective and subjective feelings. We should underline that these feelings were observed before the first starting, i.e. in the moment, when there were nothing inside the TM to create the strange smells, especially radiation.

## Conclusions from the experiments

When the experiments are not finished, certainly we can call them the preliminary conclusions. So, it was stated during the experiments, that the processes of acceleration and deceleration of Time are distinctly different in their characteristics and consequences. Thus, the deceleration occurred much more fluently and steadily. During the acceleration sharp jumps in indications were observed. The general instability and dependence from the external factors characterized the behavior of this mode of the TM. In particular, the instability of acceleration lies in the fact that with a fixed power the effect of Time course deviation depended on the daytime and the Moon phase. Possibly, it depended on the other reasons including the presence of operator near the TM. Even the small external influence (for example, mechanical vibration) led to the significant change in the effect.

In spite of the small changes of Time, even the so small acceleration can be called the likeness of "travel to the Future". But deceleration is smaller than 1 hour per hour cannot be considered as a "travel to the Past". So, physics of the Future Time is radically different from physics of the Past Time.

Present Time is the transition or conversion of a multi-alternative Future Time in the unchangeable Past Time. So, flight to the Past Time (at the "negative density  $t/t_E$ ") and flight to the Future Time should be different. It can be compared with moves of an ant along a tree: from any point of a tree (from the Present Time) there is only one way down (to the Past Time) and there are several ways upwards (in the Future Time). However, for different possible ways to the Future there are doubtless and most probable variants, also there are impossible and almost possible variants. The movement to the Future will be especially unstable and power-intensive if the variant of Future is close to the impossible version. According to the suggested "law of the top of a tree", the return move is possible only if the traveler in Time does not interfere with occurring events and his way to the Past remained unchanged, otherwise the traveler will return to another parallel Present Time of History on another branch of the tree. The penetration into the Future from the Present is hindered by the choice of a branch, but the return move from any variant of the Future Time to the Present Time is possible regardless as to the behavior of the traveler.

Experiments proved that the Person and Time have a very strong influence on each other. The effect of the operator on experiment is detected, but it has not been

investigated completely yet. It was found also that harmful effect on biological systems is not related to the process of movement in Time itself but is a result of the difference of the Time rate value in various parts of a body (a biological system).

Inside of the laboratory setup it was also discovered that Time could be changed with some inertia. Areas of space having different Time rates have vague borders. With sufficient difference in Time rate the human can see an area with a different Time rate as some white mist. Higher the difference – the mist is denser, that can be used as an alarm signal for biological systems. It is possible to consider Time-travel as possible and (after experiments with mice) there are reasons to suppose it will be safe for travelers if they follow certain rules. It is especially necessary to emphasize: the trips through Time (due to new discovered properties of Time) can't affect the Past and they can't change our past history. All the so-called paradoxes for the traveler in Time (for example when "he meets himself in the Past" or "he kills his grandfather in his childhood" have clear solutions in 3-dimensional Time.

It is possible to consider as a proven fact that Time has more than one dimension, i.e. O. Bartini's theoretical calculations are confirmed by these experiments: Time has 3 dimensions. Hence our Earth world can be considered as a 6-dimensional object: length, width, height, age or date of Time, variant of a History or erosion of Time, density or rate of Time. The concept of "the Arrow of Time" as fourth dimension (moment of Time) is a particular case of the concept of sixth dimension (rate of Time) that leads to the physical concepts of gravitation and energy and they are simultaneously connected. Concepts of the "Einstein-Rosen bridges" known since 1916 or "worm-holes"



introduced into science by John Willer in the 50's, are travels in 5<sup>th</sup> and 6<sup>th</sup> dimensions, i.e. the "classical" Time travels, which were described by H. Wells.

*Editor's: As the reader could note, the author does not disclosure the secrets of the TM design. From the photo you can see the electromagnets, which form the regular stereometrical construction as well as the cables from the TM to the control unit. Dr. Chernobrov mentioned the converging electromagnetic waves only. So, to understand how it works, it is necessary to get a clear notion of the converging electromagnetic waves. Let's imagine the ripple effect created by a stone in the water. The waves move from a central point to periphery. The converging waves are just an opposite process: the waves move from periphery to the central point. Is it possible in Nature? Yes, sure. Dr. Chernobrov wrote: "Let's throw a hoop on the water and inside of the hoop we'll see converging waves." The Time Machine technology by Dr. Chernobrov is based on the similar principle.*

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## Time Machine Project

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Faraday Labs Ltd and Dr. Vadim Chernobrov have signed the agreement on scientific-research work on investigation of active properties of time.

In the course of the previous experimental works, carried out by Dr. Chernobrov's research team during the period from 1984-2002, four versions of Time Machine had been made and tested. At these devices (the biggest system is about 1 meter in diameter) the effects of deceleration and acceleration of time course were created and measured. The principles of control of time course velocity were based on the



**Alexander V. Frolov, General Director Faraday Labs Ltd and Ph. Dr. Vadim A. Chernobrov have just signed the Contract**

interconnection of electromagnetic processes and physical properties of space-time. Special electromagnets, operating in pulse mode, are placed at the spherical frame. They create the so-called "converging wave", which by Alexander Frolov is a longitudinal wave in nature.

A joint solution of equations (IX) and (XII) gives us, as it is well known, a transverse wave with the density of energy flow equal to:

$$\vec{P}_\perp = [\vec{E} \times \vec{H}];$$

A joint solution of equations (X) and (XI) gives a longitudinal wave with the density of energy flow equal to:

$$\vec{P}_\parallel = \frac{1}{2} [c^2 \rho \cdot \vec{A} + \varphi \cdot \vec{j}];$$

As distinct from the emitters of transverse waves (dipoles of the cylindrical symmetry) the emitters of longitudinal waves should have spherical symmetry, i.e. to be the monopoles.

During the analysis of the known physical fields we can see that most of them show themselves in a small volume near the sources, i.e. nuclear field, field of weak interaction, electrostatic field (which is compensated by the fields of charges of other sign) and magnetostatic field, though the latter can spread for the distances similar to the size of Galaxy. However, electromagnetic

waves and gravitational field are really long-distance fields. At the same time both fields decrease according to the analogous law: inversely to the square of distance.

All this gives us a thought that the gravitational field can be undulatory just as the electromagnetic field. But unlike the latter it is some other class of waves, i.e. longitudinal, but not transverse. The penetrability of these waves should be very high. Admittedly, telecommunication by these waves can be made through the entire globe.

We can suppose that typically wave phenomena should be observed in gravitational field, i.e. diffraction and interference.

Material on this question was stated by the author in detail in 1991 in the article "Symmetrization of the Maxwell-Lorenz equations" in collected articles "Problems of space and time in modern natural science", part 15, Academy of Science, Russian Federation, Leningrad, 1991.

Table 1

		Statics in time		Dynamics in time			
Intensity of fields		$\vec{E} = \vec{V} \times \vec{B} \quad (\text{I})$	$\nabla \times \vec{E} = 0 \quad (\text{V})$	$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t} \quad (\text{IX})$		Scalar products	Vectorial products
	Sources of fields		$\nabla \cdot \vec{D} = \rho \quad (\text{VI})$				
		$\rho = -\frac{1}{c^2} \vec{V} \cdot \vec{j} \quad (\text{II})$		$? \quad (\text{X})$			
			Equations of connection				
		$\vec{J} = -\vec{V} \cdot \rho \quad (\text{III})$		$\nabla \cdot \vec{j} = -\frac{\partial \rho}{\partial t} \quad (\text{XI})$			
			$\nabla \cdot \vec{B} = 0 \quad (\text{VII})$				
		$\vec{H} = -\vec{V} \times \vec{D} \quad (\text{IV})$	$\nabla \times \vec{H} = \vec{j} \quad (\text{VIII})$	$\nabla \times \vec{H} = \frac{\partial \vec{D}}{\partial t} \quad (\text{XII})$			
	Dynamics in space	Statics in space					

## Time is a Physical Substance

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One hundred years ago in 1889 Russian physicist I.O. Yarkovsky suggested a thought [7] that attraction of bodies to the Earth is stipulated by inflow of ether in it, which is partially transformed into substance in bowels of the Earth. This thought showed a possible way to overcome the problem of warming-up of the Earth by particles falling on it. J. Maxwell wrote about it when he considered the hypothesis by Lesaje, which explained the gravitational interaction by the pressure of flow of "extraworld corpuscles".

An important consequence about the continuous growth of the Earth's mass followed from the hypothesis by I.O. Yarkovsky that found its confirmation in further development of Earth science.

It was showed in works by I.V. Kirillov [2-4] that 250-350 millions years ago all continents closed up without any space on the surface of the globe of two time smaller diameter. There is also a consequence from his works that gravity in this epoch was two time lower than today.

L.S. Smirnov and Ju.N. Lubina [6] paid their attention to the fact that in ancient sediments natural angles of slope of sands in aqueous medium greatly exceed modern ones. They worked several thousands of their measurements and data from literature and found that

gravity on the surface of the Earth grew in several times during last 1,5 billion years.

Taking into account the simultaneous two time growth of gravity and radius of the Earth we naturally come to a conclusion that mass of the Earth grew in 8 times during 250-350 millions years. A hypothesis by P. Dirac that the cause of swelling of the Earth is a decrease of value of gravitational constant should be rejected since it is not true.

Let's show that average density of the Earth during the period of 250-300 millions years practically didn't change. Acceleration of free fall on the surface of the Earth can be found by the formula:

$$g = \frac{\gamma M}{R^2} = \frac{\gamma}{R^2} \cdot \frac{4}{3} \pi \rho R^3 = \frac{4}{3} \pi \rho \gamma R \quad (1)$$

where  $g$  is an acceleration of free fall,  
 $\gamma$  is a gravitation constant,  
 $M$ ,  $\rho$ ,  $R$  are the mass, density and radius of the Earth.

Let's find the density of the Earth from this formula:

$$\rho = \frac{3g}{4\pi\gamma R}; \quad (2)$$

From this formula we can see that simultaneous growth of acceleration of free fall and radius of the Earth in two times, taken place in the period of 250-300 years don't affect the value of its density.

Let's consider possible parameters, which define the growth of mass of the Earth, on the assumption of the hypothesis by I.O. Yarkovsky. Let's regard that the density of energy flow, which flows into nuclei of atoms from outside, is defined by the density of energy of gravitational field on the surface of nuclei, and let's take the speed of movement of the flow equal to the speed of light:

$$\omega = \frac{G^2}{8\pi}; \quad (3)$$

where  $G$  is the tension of gravitational field, which in its turn is equal to:

$$G_n = \frac{\sqrt{\gamma m_n}}{R_n^2}; \quad (4)$$

where  $m_n$  and  $R_n$  are the mass and radius of nucleus. It follows that the density of gravitational energy will be equal to:

$$\omega = \frac{\gamma m_n^2}{8\pi R_n^4}; \quad (5)$$

The value of the flow of gravitational energy, which flows into the nucleus, will be equal to:

$$\Delta W = \omega \cdot 4\pi R_n^2 \cdot c \cdot \Delta t; \quad (6)$$

where  $c$  is the speed of the flow,  $\Delta t$  is the time of its inflow. Taking into account the ratio of mass and energy:

$$mc^2 = W, \quad (7)$$

let's find the increment of the mass of nucleus during the time  $\Delta t$  taking into account the formula (5):

$$\Delta m_n = \frac{\Delta W}{c^2} = \frac{\omega}{c} \cdot 4\pi R_n^2 \cdot \Delta t = \frac{\gamma \cdot m_n^2 \cdot \Delta t}{2 \cdot R_n^2 \cdot c}; \quad (8)$$

Since densities of nuclei can be considered to be equal to each other, then:

$$R_n = R_N \cdot A^{1/3}; \quad (9)$$

where atomic weight is defined by the ratio between the mass of nucleus and nucleon:

$$A = \frac{m_n}{m_N}; \quad (10)$$

From formulas (8), (9) and (10) we will get:

$$\frac{\Delta m_n}{m_n} = \frac{\gamma \cdot m_N \cdot A^{1/3} \cdot \Delta t}{2 \cdot R_N^2 \cdot c}; \quad (11)$$

Changing the increments on differentials we will get:

$$\frac{dm_n}{m_n} = \delta_A \cdot dt; \quad (12)$$

$$\text{where } \delta_A = \delta_N \cdot A^{1/3}; \text{ and } \delta_N = \frac{\gamma \cdot m_N}{2 \cdot R_N^2 \cdot c}; \quad (13)$$

in which connection the value  $\delta_N \sim m^{1/3}$ , i.e. it changes very slowly. That's why to be simple we will consider it as a constant in the first approximation. Let's find the value  $\delta_N$ :

$$\delta_N = \frac{6,67 \cdot 10^{-8} \cdot 1,6735 \cdot 10^{-24}}{2 \cdot (1,56 \cdot 10^{-13})^2 \cdot 3 \cdot 10^{10}} = 0,76445 \cdot 10^{-16} \text{ sec}^{-1};$$

Considering that the relative increase of the mass of the Earth is equal to the same increase for nuclei of atoms

$$\frac{dM}{M} = \delta_A \cdot dt \quad (14)$$

and solving this equation we will get:

$$M = M_0 \cdot \exp(\delta_A \cdot t); \quad (15)$$

Let's find the period of doubling of the Earth's mass:

$$2M_0 = M_0 \cdot \exp(\delta_A \cdot \tau_A); \quad \ln 2 = \delta_A \cdot \tau_A;$$

$$\tau_A = \frac{\ln 2}{\delta_A} = A^{-1/3} \cdot \frac{\ln 2}{\delta_N}.$$

Thus:  $\tau_A = \tau_N \cdot A^{-1/3}. \quad (16)$

where  $\tau_N = \frac{\ln^2}{\delta_N} \quad (17)$

is a period of doubling of mass of nucleon numerically equal to:

$$\tau = \frac{0,69315}{0,76445} \cdot 10^{16} = 0,9067 \cdot 10^{16} \text{ sec} = 287,33 \text{ mln. years}$$

Let's calculate the average value  $\delta_{av}$  taking into account the elementary structure of Earth's substance on the basis of Brown's and Masset's data [1]. (See table 1).

Table 1

#	Element	n%	A	A <sup>1/3</sup>	A <sup>1/3</sup> (n%)/92
1	Oxygen	32.0	16	2.5198	0.87645
2	Iron	25.0	56	3.8258	1.03963
3	Silicon	14.5	28	3.0366	0.47858
4	Magnesium	12.5	24	2.8845	0.39191
5	Sulfur	8.0	32	3.1748	0.27608
	TOTAL:	92.0	-	-	3.06274

It follows from the table that  $A_{av} = (3.06274)^3 \approx 28.73$ ; from this

$$\delta_{av} = \delta_N \cdot A_{av}^{1/3} = 0,76445 \cdot 10^{-16} \cdot 3,06274 = 2,3368 \cdot 10^{-16} \text{ sec}^{-1},$$

as well as

$$\tau_{av} = \tau_N \cdot A^{-1/3} = \frac{287,33}{3,06274} = 93,8 \text{ mln. years.}$$

$$m_e = m_{e0} \cdot \exp(\delta_e \cdot t); \quad (18)$$

with this, if  $m_e$  is the mass of an electron in the given moment of time, then  $m_{e0}$  is the mass of an electron in the moment of time, which is distant back on the value  $t$ . therefore,

$$m_{e0} = m_e \cdot \exp(-\delta_e \cdot t); \quad (19)$$

On the assumption of that mass of the Earth increased in  $\delta = 2^3$  times, let's find the time of its increase:  $T = 3t_{av} = 93,8 \times 3 = 281,4$  mln years. The received figure keeps with the interval of 250-300 mln. years given in the works by Kirillov. Let's calculate the value  $\delta_e$  for an electron with a supposition that its density is equal to the density of nucleon:

$$\delta_e = \delta_N \left( \frac{m_e}{m_N} \right)^{1/3} = 0,76445 \cdot 10^{-16} (1837,4)^{-1/3} = 6,24 \cdot 10^{-18} \text{ sec}^{-1}.$$

$$\tau_e = \frac{\ln 2}{\delta_e} = 3,52 \text{ billion years}$$

accordingly.

Let's suppose, that the mass of an electron also increases by exponential law:

Then the energy of photon emitted by atom of hydrogen will depend on time in the following way:

$$E_{ph} = h_1 \cdot \omega = \frac{e^4 m_{e0}}{2h_1^2} \left( \frac{1}{n^2} - \frac{1}{k^2} \right) \quad (20)$$

where  $h_1 = \frac{h}{2\pi}$  is a reduced Plank's constant,  $\omega$  is a cyclic frequency,  $e$  is a charge of an electron,  $n$ ,  $k$  are the main quantum numbers. From this the relative change of frequency will be equal to:

$$\frac{d\omega}{\omega} = \frac{dm_{e0}}{m_{e0}} = -\delta_e \cdot dt; \quad (21)$$

The passage time of the way  $dl$  by photon is equal to:

$$dt = \frac{dl}{c}; \quad (22)$$

From this:

$$\frac{d\omega}{\omega} = -\delta_e \cdot \frac{dl}{c}; \quad (23)$$

So, atom of hydrogen will emit two different photons in the interval of time of  $dt$ . These photons are different from each other by their frequency at the value of

$$d\omega = \omega \cdot \delta_e \cdot dt;$$

If we compare the photon, which came from the source situated on a distance of  $dl$  from us, with a laboratory photon, then the relative change of its frequency will be equal to:

$$\frac{d\omega}{\omega} = -\delta_e \cdot \frac{dl}{c}; \quad (24)$$

i.e. the farther the source of radiation is situated from us, the more its spectrum will be shifted in the direction of lower frequencies. E. Hubble discovered this phenomenon known as a «red shift» in 1929 and it is described by the formula:

$$\frac{d\lambda}{\lambda} = -\frac{d\omega}{\omega} = H \cdot \frac{dl}{c}; \quad (25)$$

where  $l$  is the wavelength,  
 $dl$  is a distance to the object of observation,  
 $H$  is Hubble's constant.

Now there is a following accepted value of Hubble's constant:

$$H = 75 \frac{km}{c \cdot MPC} = \frac{75 \cdot 10^3}{3,086 \cdot 10^{22}} = 2,4303 \cdot 10^{-18} \text{ sec}^{-1},$$

where 1 MPC is 1 megaparsec equal to  $3,086 \cdot 10^{22} \text{ m}$ .

However, the value of the constant found by Hubble himself was equal to 530 (km/sec MPC), then in 1952 Baade gave a value equal to 290 (km/sec MPC); later a value of 180 (km/sec MPC) was received, and at last the value, which is accepted now, is given in the limits of 50-100 (km/sec MPC). The value of Hubble's constant calculated by the formula (24) has a value of:

$$H = \delta_e = 6,24 \cdot 10^{-18} \text{ sec}^{-1} = 192,6 (\text{km} / \text{sec MPC})$$

i.e. it blends with the dispersion of values given by different authors [9] (see Table 2).

***The result received by us is good to explain the "red shift" without using of the idea on extension of the Universe!***

Table 2

#	Author	Year	H km/sec. MPC
1	E. Hubble	1929	530
2	V. Baade	1952	290
3	V. Baade, H. Swop	1955	100
4	E. Sandidge	1962	98
5	S. Vandenberg	1965	100
6	E. Sandidge	1968	75
7	E. Sandidge, G. Tammenn	1975	55
8	R. Tallu J. Fisher	1977	90
9	J. Voculaer	1979	100
10	G. Tammenn	1982	50
11	M. Aaronson	1982	85

***So, we got a connection between the mass of the Earth and time on the basis of Yarkovsky's hypothesis. Taking into account the formulas (1) and (14) we will get:***

$$\frac{dM}{dt} = \delta_N \cdot A_{av}^{1/3} \cdot M; \quad \frac{dg}{dt} = \frac{1}{3} \cdot \delta_N \cdot A_{av}^{1/3} \cdot g; \quad \frac{dR}{dt} = \frac{1}{3} \cdot \delta_N \cdot A_{av}^{1/3} \cdot R; \quad (26)$$

Thus, we obtained that speeds of growth processes of different physical parameters (mass and radius of the Earth, acceleration of free fall) are proportional to the values of these parameters. **Therefore, the value itself can serve as a measure of past time and the speed of change of the value of parameter as a measure of time rate.**

Really, the analysis of distributions of zones with increased value of acceleration of free fall on the Earth shows that location of all ancient civilizations get into these zones. It indicates the higher time rate of evolution in these regions, which contributed to the quicker development of cultures of these civilizations.

As it is known, acceleration of free fall is less in area near the pole in southern hemisphere of the Earth than

in north hemisphere on the value  $\frac{\Delta g}{g} = 30 \cdot 10^{-6}$ .

The difference in time of southern hemisphere from northern hemisphere on the segment of time  $\Delta t$  should correspond to this value according to the formula (26) and it is equal to:

$$\Delta t = 3 \cdot \frac{\Delta g}{g} \cdot \frac{1}{\delta_N} = \frac{3 \cdot 30 \cdot 10^{-6}}{0,76445 \cdot 10^{-16}} = 117,8 \cdot 10^{10} \text{ sec} = 37,33$$

thousand years.

Therefore, ***evolutionary processes in northern hemisphere should surpass the same processes in southern hemisphere.*** Actually, we know that the whole range of ancient animals like marsupials had already disappeared in northern hemisphere and remained only in southern hemisphere. From the other side, approximately all ancient civilizations existed only in northern hemisphere.

As it is known, in one's time it was supposed to make a analogy of time with the entropy of closed systems, which increases continuously like time does, to have a pictorial view of direction of time arrow.

However, the analysis made above, which relies on geological experimental data, shows that it is better to corre late the course of time with changes of mass and radius of the Earth as well as with the change of acceleration of free fall. These changes are connected with deep processes in Nature called by the inflow of some positive energy from the surrounding vacuum to the Earth and accordingly into nuclei of atoms.

***We should do only one step from the supposition on connection between time and process of energy inflow into nuclei of atoms to authentication of time with the flow of energy itself, and we will do it.***

So, let's suppose that time is some physical substance, which has positive energy and flows into nuclei of atoms from the surrounding vacuum. Thus, in our notions of time we share A.N. Kozyrev's opinion [5], which consider that internal energy of stars grows due to the flow of time.

Inflow of some physical substance, which has energy and momentum, into bodies from the surrounding vacuum should lead to their mutual attraction as it was shown in the works by V. Thomson, who proved that attraction between bodies appears in the case of simultaneous inflow of some liquid into these bodies as well as in the case of outflow. That's why, taking into account Thomson's results, **we can suppose that time represents a physical substance, which has positive energy and flowing into nuclei of atoms or has negative energy and flowing out of them.**

The case of outflow is more preferable since gravitation energy is negative, as we know.

This substance can be structured, for example, due to the wave process, i.e. it can represent a longitudinal wave, which enter nuclei or leave them. In this case an attraction between bodies also appears, as it was shown by K. A. Bjerknes [8].

In further works we will try to build a theory of gravitational interaction of bodies on the basis of Yarkovsky's hypothesis.

Where is the source of this substance-time? If we suppose that the surface of elementary particle separates our space from some other space, then the outflow of substance-time comes from another space to our space. In the case of three-dimensionality of these spaces we should speak about seven-dimensional space-time, which includes our and another Universe, and they are connected by the flow of substance-time.

***It is possible that this process of transmitting of substance-time and accordingly energy and mass from one Universe to another one takes place as periodical oscillation from one side to another.***

Transmission of signal by meaus of the flow of substance-time, i.e. modulation of this flow, can allow to produce an immediate communication between points of our Universe though the space of another Universe situated inside of elementary particles.

Thus, it is possible that the entire Universe is connected together through time and all processes of the universe are synchronized.

#### **Let's enumerate the results obtained in thr given work:**

1. The hypothesis by I.O. Yarkovsky on the reason of growth of mass and radius of the Earth is analyzed and its productivity is shown.
2. Numerical values of constants of growth of mass and radius of the Earth as well as acceleration of free fall are obtained.
3. The "red shift" is explained on the basis of Yarkovsky's hypothesis without attraction of hypothesis on expansion of the Universe.
4. Numerical value of Hubble's constant is obtained.
5. The explanation of correlation between location of ancient civilizations and zones of increased gravity is given.
6. The explanation of advanced evolutionary development of northern hemisphere of the Earth is given and time of this advance is calculated.



7. The notion of physical substance-time, which is the cause of growth of mass and energy of heavenly bodies, is introduced.
8. The supposition on nature of gravitational interaction of heavenly bodies due to physical substance-time is made.

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## Experiments on Change of the Direction and the Rate of Time

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Professor N.A.Kozyrev, Russia, who wrote some papers on causal or asymmetrical mechanics, made the first experimental study into the physical properties of Time. Experiments managing the direction and rate of Time were made. Since 1967 in Moscow Aviation Institute some research works were made under the direction of Professor Felix Yu. Zigel (up to his death in 1988) on UFOs, which had some technical forms. According to the work on State Budget topic "Preliminary researches on abnormal phenomena in the atmosphere" a lot of important information was collected on this phenomena. The information was used to determine connections between the cause and effect, and some physical processes were determined by authentic cases of traces and fragments, cinema and photos, and telemeter images of UFOs from 1987 up to the present time. There is data about influences of some parts of these objects and their body (surface of device) on the rate and direction of Time. To confirm this last statement a series of experiments was made with 4 types of laboratory systems (and in the present time one more system for new experiments is developed).

In experiments on deceleration and acceleration of physical Time in a small closed area of space (made since 1988) ***the effect of electromagnetic field influence on space-time continuum was tested***. The experimental system used to investigate such kinds of effects consists of a set of electromagnets connected in series and in parallel and they are installed on spherical surfaces. In various experiments from 3 to 5 Electromagnetic Working Surfaces (EWS) were used. All EWS layers of various diameters were installed inside each other (similarly to a Russian doll "matrioshka"). The maximum EWS size was about meter, the minimum EWS diameter (internal) was 115 mm, which is the quite sufficient to allow experiments

with some control equipment, detectors and animals (various kinds of insects and laboratory mouse) to investigate the so called effects of ***converging spherical electromagnetic waves***.

The measurements of Time rate were made by all known modern means of measurement: all kinds of electronic, quartz, mechanical, nuclear clocks were used; as well as the specially produced duplicated quartz generators (to compare frequencies of standard heat-shielded generators); fiber-optic line diodes and other ways were tested. Though some kinds of measuring devices, for example, quartz clock, can be influenced by other physical factors, the duplication method of measurement allowed us to reduce the error of measurement. Thus a change in the rate of Time was produced (Professor Kozyrev named this "density of Time"). We can write  $t/t_E$ , where " $t_E$ " is the normal Time of the Earth space and " $t$ " is the local Time inside of the experimental system. This change in the rate was detected as several seconds per hour, but in one experiment the deceleration of the Time was measured as minus 4 minutes per 8 hours (minus 30 sec per hour) due to some incompletely understood reasons. Slowing down of the rate of Time up to minus 1,5 sec per hour and acceleration up to plus 0,5 sec per hour was produced and explained. If we accept the usual Earth Time as  $t_E = +1$  it will become clear that we investigated a change in the speed of Time through a very small range:  $+0,99 < t/t_E < +1,01$ . So, the tested subjects and animals at any mode of operations (slowing down or acceleration) were moved into the Future faster or slower than those in normal space.

Through experiment it was established that the processes of slowing down and acceleration of Time are absolutely different. The slowing down of Time was smoother and steadier than acceleration, which showed sharp jumps. The mode of acceleration is unstable and it depends on some external factors. In particular, the instability of Time acceleration is connected to the period of day or night and also the Moon phase, probably to other reasons. One of the reasons is human presence near the Time Machine. Even small external effects, for example mechanical vibration, can produce a great result and change the value of the effect.

# Experimenting With Time

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*"The notion of Time should be kicked out from Physics."*  
Archimedes

1. All Physical and Biological Systems are naturally driven 'time-machines' with inbuilt internal times.

2. There are three levels of Time:

(a) "**General Time**" is infinite and essentially different and independent of Space and Matter; it is real, identical with a Being and exists beyond our sensory perception as non-spatial, dimensionless entity. It generates, underlies and governs all universal phenomena appearing nowhere directly as the apparent cause of change and can be experienced through consequential events, only. Moreover, this is nothing new – "General Time" works as any other known Natural Law, existing as a pure "Time Principle". It belongs to the realm of Metaphysics and its ontological definition is "Continuity". However, what is the most important to be comprehended and recognized, is its rank: The "Time Principle" is the most fundamental "Natural Law". Since it is dimensionless, the "quantum" concept is not applicable in its interpretation;

(b) "**Internal time**" is the "time code", which structures the Physical System and regulates its functioning, that means its reactive changing caused by external influences;

(c) "**Local time**" is the "time operator" or time condition external to the Physical System and if applied on it yields its new physical state. In the case of total rearrangement of the "internal time code", the "local time operator" generates an entirely new Physical System. Both internal and local times are given and fixed by units of the frequency set of Electromagnetic Spectrum and **that is exactly what the time-engineering makes possible and the time control achievable aim.**

3. **Why EM fields are affecting (and adjusting) the rate of time-flow in solid material objects?** It might be so because Matter itself ultimately consists of the same kind of fields (deeply cooling the solid matter, experimentation finally gets the wave pattern, which behaves as Light and can be manipulated in the same way). What is related with time: "hard" particle or "soft" wave? Since specific times are given by frequencies, there is no actual "dualism" of Matter, but only relative effects due to time-arrangement of the frequencies involved. The natural frequency calculus between the internal "time code" of the Physical System and applied local "time operator" creates properties of "softness"

and "hardness". Probably, each of the chemical elements of the Periodic System has its own specific "internal time code" and their interactions are basically "time – operations". Resonance is a synchronicity of structures. The ancient Greek philosopher Democritus conceived that "Atoms" can be of any size and there are worlds, which are built, of so big atoms that look to us as "empty" space and we are passing through them without knowing. Today we maybe need a better view on what are true atoms. "Atom" should be an elementary entity, indivisible under all conditions. Seems that it is the main property of the units of EM Spectrum; no matter how long it is, millimeter or kilometer, EM entity cannot be cut in parts. Modulation is the "time-shift" effect too. Modulated EM emission still exists in whole, but cannot be so perceived in a new "present" created by modulating field.

4. Arrow of time in Electromagnetic Spectrum: "Present" is established by the field, from which experiment begins (any frequency of the Spectrum can be used); higher frequencies are the "past"; lower frequencies are the "future". So, naturally given time orientation past-future in EM Spectrum is represented as traverse from higher to lower frequencies (of course, the same holds for "term" and "wave-length"). **Practically, there is no limitation in direction or rate of controlled time traveling.** Whenever the EM field is switched on by man, the new initial time condition - the local-time "Present" is created. The set of three EM fields is the most effective covering of all the three modes of time: past, present and future. But, even better results will be obtained if the experimenter isolates his experiment from inevitable spontaneous influence of natural EM fields - by additional, the fourth field of special characteristics. **If the experimenter applies EM fields of higher frequencies, the system will "travel" into the future; if lower frequency fields are applied, the system will be shifted into the past;** if applied EM fields are of the frequencies higher than those, which structure the system itself, it will be completely shifted into the future, it will disappear before the eyes of those who are subject to reference "present time"; if the system is exposed to low frequencies (according to the exact mathematical Law, which regulates all the time-shift occurrences), the system will start moving in leaps, jumping in the fields or disappear into the past. "Jumping" is just a macro-effect demonstrating the true nature of motion in general: it is exclusively discontinual (quantization of space is the only physical solution to Zenon's paradoxes). It should be stressed here that Maxwell's Electromagnetics does not cover these cases, neglects inherent time-properties of EM Spectrum and is very distant of any consideration on active role of time in electromagnetic events (**N. Tesla never used Maxwell's equations calling them "poetical"**).

5. If we take very ancient radically realistic approach towards mathematics, we shall get its profoundly new picture that would enable us to comprehend its enormous, but still unused power. Taken as a whole,

**mathematics is nothing else, but the hidden Science of Time** (not only Algebra is that as was already indicated by Hamilton). The representation of the dimensionless "General Time" in Geometry is "Point"; in Arithmetic it is "Zero". "Point" is the "General Time" image; "Zero" is the "General Time" number. Mathematical operations themselves are also non-spatial and dimensionless, they are of time-nature and the "Time Principle" is working through them, they are time-tools.

6. Geometrical and Arithmetical objects that have dimensions and quantities correspond to Space and Matter. Since the infinities cannot coexist (Melissus of Samos), if Time is infinite, Space and Matter must be finite. Space (or "Continuum" - ontological definition of Space as dimensional and finite) is structured of indivisible quanta of any length, arranged (rarified) by time. Range of Space quanta coincides with the range of EM Spectrum, **in fact, Space and EM Spectrum are identical, and they are the same.** "One" is Arithmetical quantum of Space and should be interpreted as any "present frequency" of EM Spectrum - frequency chosen to start the time-experiment. "One" could be of any length as in Euclidian Arithmetic - "one" is a "line". Kronecker was inspired stating that we should use only Natural Numbers ("created by God"). Indeed, using "one" as a "line" we can mathematically express the whole physical space. The 'length' has no preferential direction or position and from this follows that "spherical law" spontaneously generates a Sphere. To build the whole space, only one dimension - length (Diameter) and "spherical law" are necessary; other dimensions and Space properties appear with them. Natural Numbers (except "zero" - "General Time" and "one" - "line" or "quantum of space") correspond to internal and local times. But, if we look closely, we shall find that both internal and local times are contrary (mutually dependant) operators, which generate and conduct Space and Matter through constantly time-shifting. Time is also the cause of "eternal motion" in the Universe; the motion is asynchronicity like it is the change itself.

## ***Matter is a Number...***

7. Matter is a Number. Physical system is a special case of space-configuration subjected to only one and intrinsically harmonious internal "time code"; it is conducted (set into motion) by local "time operator", or external EM fields. (N. Tesla noted that there is no energy in the system besides that which is incoming from the environment - **"There is no energy in matter except that absorbed from medium."**)

Ball Lightning ("Fire Balls") is a primary natural macro-fusion. "Fire Balls" are synthesizing of EM fields by "time-mathematics" and can be stable structures under certain EM conditions. Material bodies are formed in the same way; the difference is only in complexity

(number of time-organized frequencies). The Law (Time) and the initial shape (spherical) are the same; varieties in size come from the constitutive frequencies and varieties in shape (deformations of the sphere) come from "local time operators" (external EM fields).

**8. In the entire History of Science, Kozyrev was the first who clearly pointed the deepest issue in Physics claiming that concepts of Force (and Energy, as well) are to be substituted by "Time", by formulation of the "Time Law". For him Time was a Force.** (Already Archimedes thought that notions of "Time" and "Force" suffer of overlapping contents and because of that both are indistinct; he also believed that leverage has "mystical" properties: longer physical leverage plus weight is heavier than the shorter leverage plus the equal weight, but needs less force to be operated. For Archimedes it demonstrates the unrevealed relation between Space and Force. However, let's consider the "mathematical leverage": its "hands" are dimensional, have length, but what about its "stand-point"? Is the dimensionless "stand-point" of a mathematical leverage - a Space, spatial? It doesn't look like that. Newton in "Principia" said: "The Absolute Time flows..." How comes that "motion of time" and what is its relation to Force? Newton was seeking for the "cause of Force".

9. In conclusion: contemporary theoretical research in Physics, especially in Cosmology, is deeply disconnected with Physical Reality. The Criteria of "natural limitations in mathematics" (Rene Thom) are to be reintroduced as strict physical interpretation of every symbol and formula used in physical experimenting. The role of Time is almost completely unknown. Time is considered inactive in experiments; there are no even its Hypotheses, not to mention the lack of any kind of its definition. The Relativity Theory cannot help very much, since Einstein started from the assumption that "Time isn't really existing". **But, according to the extremely important work of Vadim Chernobrov, the pioneer of intensive experimenting with the "change of rate of time flow" caused and controlled by EM fields, the path has been found leading to the full cognition and mastering of Time.** Soon it will be obvious that all the physical experiments are ultimately explainable as Time-based. Time generates Space and then Matter; it is the cause and conductor of all the cosmic change. **Successful experimenting with Time by EM fields is uncovering totally new fundament of Physics.** The valid, repeatable and easy measurable initial results in obtaining "Time-control" are not in question, there are more of them then we can recognize as such at the moment. However, the corresponding new mentality in Science needed to release ideas in support of the new, I would dare to say - "Time-shift Technologies" - is yet to come.

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# Practical Application of Time Rate Control (TRC) Theory

Alexander V. Frolov

In the modern World strategic balance of political forces is provided mainly due to military power. Not one country can be sure that use of weapons will remain without a response action from the enemy. Rather the contrary, this response action is unavoidable. Maintenance of this condition is a guarantee of some stability in the world. This condition is **an example of cause-effect relations**. In reality they have some probability or "extent of hardness". The period of delay and the scale of consequence describe this hardness of cause-effect connection. The power of these processes as well as the forms of cause-effect manifestation also can be different. The similar situation is observed not only in relations between states, but also on other levels of social relations, though the causality here is not so hard.

We can find the reflection of our desire to restore the justice in the principle of causality. We can assume that religious commandments, social rules of behavior for people and state laws written by people are the analogues of real physical mechanism. The space itself is designed according to this higher law. Let's remind also the law of momentum conservation, law of electromagnetic induction and its manifestation in the common electromagnetic transformer. Theory by N.A. Kozyrev [1] considers cause-effect relations from positions of the concept of active properties of time. In this concept the speed of the course of time is defined as a ratio of distance between the cause and the effect to the period of time delay between them. For our space it is equal to the product of the speed of light and the fine structure constant, i.e. the speed of the course of time is 137 times smaller than the speed of light. Let's note, that it is not the speed of motion in space, but the "rotation speed of the cause-effect connection". From the other hand, in his work [2] Dr. Shipov presents the mathematics of four-dimensional rotations and firstly introduces the notion of torsion fields. In my mind, there is a clear analogy between notion of four-dimensional rotations in torsion technologies and cause-effect transformations by Kozyrev.

Now let's try to clarify physical sense of the fine structure constant. This constant is known in physics mainly as a factor, related with ratio between own spin and orbital spin momentum of a particle. Besides, Dr. Spartak M. Polyakov in his work [3] described internal structure of photon. On his assumption, minimal prolongation of any electromagnetic quantum is equal to the product of the wavelength and ratio between the fine structure constant and the speed of light. So, the internal structure of photon according to Polyakov reflects the features of inner structure of space, which was described by Kozyrev. Also we have to note Dr. Rykov's work on the fine structure constant [4]. He showed that the Plank's constant depends on parameters of Ether and the fine structure constant, so **we can assume an analogy**

**between "structure element of Ether" and "elementary cause-effect connection"**. Also there is a clear analogy between Rykov's notion of "elasticity of Ether structure" and Kozyrev's "hardness of cause-effect connection", which in my view can be described as some probability.

These links between few theories had not been discussed before and now we have a conclusion, which first gives us theoretical grounds for the known supposition that light (electromagnetic wave, i.e. photon) and time are allied physical notions. So, it is possible to state the following: The fine structure constant is a factor, which related with present physical structure of our space-time. Another structure of space-time means changes of all constants and all properties of matter. It means other time and other matter. Physical properties of element of space-time (some "elasticity" or "hardness of cause-effect connection") defines Plank's constant, speed of light and speed of course of time (rate of cause-effect transformations). Since cosmic processes define the fine structure constant, then all physical properties of our real space are the effect of real cosmic processes. There is similar situation in micro world, in which the fine structure constant is described by parameters of own spin and orbital spin of an elementary particle. If now we have a real understanding of the fine structure constant, then it should be possible to create local space-time by means of special technical systems. Space-time engineering becomes an applied science. From this we can develop the practically valuable technologies.

There is a real way to confirm this conception. The cosmic processes (motion of planet, stars and other processes in Galaxy) are stable only for relatively short period of our observation and some variations should be detected for a long period of time. In the article "Search for Time Variation of the Fine Structure Constant" John K. Webb and other authors investigated possible variation **in the fine structure constant** [1]. Also in another article "Space-Time Variation of Physical Constants and Relativistic Corrections in Atoms" the author V. A. Dzuba reported on this topic [2]. Analysis of the light from distant quasars has shown that billions of years ago the fine structure constant was different at earlier times in the history of the Universe. Now the value "alpha"  $\alpha \cong 1/137$  is a little bit more than in the past.

According to Kozyrev, the speed of the course of time (rate of cause-effect transformations) can be calculated as

$$v = c \cdot \alpha \cong c / 137 \quad F.1$$

where  $c$  is the speed of light. Increase of the fine structure constant means an increase of the speed of the course of time for our space-time.

According to Kozyrev, there are two extreme cases of the cause-effect relations:

1. In classical mechanics the distance cannot be equal to zero, but time can be arbitrarily small, including

the situation, when it can be equal to zero. The speed of the time course in this case is equal to infinity.

2. In the atomic world vice versa the speed of the course of time is equal to zero since the distance can be equal to zero, but there is always some delay in time, which we should take into account.

Our real world occupies the intermediate position and it has a certain time course as a transformation of the cause to the effect. There is a conclusion: Modern World became more stable and its laws became more similar to classical mechanics laws due to strengthening of the causality. Also it is possible to state the following: at the beginning of our World, physical laws of its space-time were more similar to laws of quantum mechanics.

**It is possible to assume that changes in physical laws are related with changes of position of our real World in the Universe due to the cosmic processes of motion. In other words, from point of view of the Ether conception, it can be explained as some natural changes in density and other parameters of Ether wind in space of our planet for different stages of development of our Galaxy in the Universe.**

Let's consider how can we use this natural cause-effect mechanism of space to create teleportation systems or "an ideal weapon" and how it will work. But at first we should specify some notions.

So, the real World occupies the intermediate position between classical mechanical World and quantum World and we move from chaos of quantum World to the strengthening of the causality. Specific parameter of space is a certain speed of the time course as a transformation of the cause to the effect. N.A. Kozyrev supposed and showed in the series of experiments that for interaction of some systems with the flow of time we can expect the appearance of additional forces in these systems. Therefore, mechanical tensions and changes of full energy of the system can occur due to the changes of energy of the time course [1, p. 344]. We should note, that all material systems always exist in time and in this sense they always interact with time. **The cause of the appearance of additional forces is the asymmetry of the cause-effect energy relations.** It can be realized by means of various technical methods. We should also note that according to Kozyrev "...mechanics, which corresponds to the principles of causality, should be developed from the extreme case of Newtonian mechanics, but not from the quantum mechanic case. Some features, which are characteristic to the quantum mechanics, can appear during this process. For example, we can expect the appearance of the quantum effects in the macroscopic mechanics" [1, p.345].

Further we can turn to the consideration of new conception of defense. Let's suppose, that military system A stroke some system B. For the real World we should take into account, that there is some distance in space between systems A and B. Manifestation of the forces of causality is expected only in the irreversible

processes. That's why we suppose that the impact led to the irreversible processes in the system B. In such a way the common cause-effect connection will form a cycle.

Now let's suppose, that the system B could prevent the irreversible processes of its destruction by some technical way, for example, by means of anti-missile rocket. The cause-effect connection will form a cycle in this case also. It was made by certain actions in the period, when the system B was stricken, but the effect had not came yet. Theoretically it is possible since with the known speed of the time course for some real distance between the interacting systems, interval of time between the cause and the effect cannot be equal to zero. But in real situations instantaneous or sufficiently prompt reaction of the system B is not possible. Just rely on this aspect, the system A will try to reduce delay between "cause" and "effect" and distance between its military base and the system B.

New conception of weapon does not mean the repulse of the impact by some material counteraction, i.e. by means of some energy consumption. **Since it is impossible to do so that the cause-effect connection will not be closed (it will contradict to the laws of space structure), then it is necessary to close it artificially.** In other words, it is necessary to put in action the natural mechanism of causality before irreversible damages of the system B occurred.

**For more than defense action, it is possible to produce a response action to the system A through the natural mechanism of causality.** The effect (equivalent of missile action) should come in area of space, where the cause was, but a little bit later. Spatial matching of cause and effect in one point (with some interval in time) is possible in quantum mechanics, as we considered above. Therefore, the techniques being in arsenal of the system B should change the parameters of space (reduce the speed of the course of time in some area of space) in such a way, which allows the laws of quantum mechanics to work for the system A.

We can hardly suppose the possibility to create an artificial 100% quantum mechanic reality in macro world, but it can work even partly. In this case the effect will come in the same place, where the cause (system A) is situated. The real position of the cause in the Universe does not play any role. The energy of the system A should change due to the active properties of time. According to Kozyrev, these properties led to the appearance of an additional torsion moment in the experimental unit. On the micro-level it can mean that energy of atoms of matter will change in the area of cause and this will produce mechanical destruction of the system A.

**In any case it should lead to increase of entropy in area of space where the cause is situated.**

This effect is an analogy of change of the light beam trajectory on the boundary between two mediums of different index coefficient. With the full reflection the

whole momentum should return to the launching point of the missile, but not due to the return of the missile itself. The equivalent of this momentum returns due to the active properties of time and not in the form of the linear vector of speed, but in the form of additional energy, which is transferred to the particles of matter due to changes of the time course.

Only part of the momentum will return with the partial reflection. It will increase the entropy of all matter in area of the cause.

Technical realization of these principles depends on the final goal of the research work. To make it easier, the term "speed of the course of time" can be replaced with the notion of "density of ether" and "speed of the ether flow".

Another aspect is following. In area of space with changed time course, the changes in operation parameters of electronic equipment will not allow controlling the missile. Thus, this part of defense problem is solved also. We should note that Kozyrev's experiments already proved the influence of changes in the time course on the quartz oscillators, sensors, semiconductor elements and resistors. A number of other authors showed the influence of "radiation of a special kind", for example, torsion fields, to the speed of chemical reactions proceeding and physical properties of materials. Since the area of space with the changed properties can have significant sizes, then by means of this method we can provide the defense of large territories.

Technical realization of these principles depends on the final goal of the research work. To make it easier, the term "speed of the course of time" can be replaced with the notion of "density of ether" and "speed of the ether flow". A number of authors consider time as a result of motion in ether. Really, the Galaxy, stars and planets move in the universal medium. From this point of view we can consider one more useful analogy. The known Archimedes' law defines the forces acting on the body, which is immersed into some liquid.

The analogy between ether and liquid is considered and experimentally proved by Dr. Alexander M. Mishin [7] and others.

Further we can turn to the forces analogous to Archimedes' forces and they act to the area of space

with the changed course of time. Due to these forces, this **area of space will be forced out in some direction**. It is known that the balloon is forced out from the dense air in the direction of the rarified one. There is a question: is the area of slowed time the more dense ether or more rarified ether?

According to Kozyrev, the following terminology is accepted now: matter acquires more ordered structure (less entropy) in the area of high density of time [1, p. 387]. Usually time course is directed from the past to the future and in this case the entropy always increases. That's why the decrease of entropy corresponds to the decelerated time course and to the area of high density of time.

From the ether conception we can get the same conclusion. Besides, we get a number of technical details. More dense ether means more number of ether elements in the same volume. Earlier we considered time as an order of elementary cause-effect connections.

Thus, we can make an important conclusion: the elementary cause-effect connection is an element of ether (graviton in some conceptions), which was the subject of many scientific researches. In full accordance with Kozyrev's theory, the denser ether, the more elementary cause-effect connections are required for the same action. That's why the time course is slowed in more dense ether.

The area of accelerated time course should be forced out in the direction of the rarified ether. Analogously, the area of slowed time is forced out in the corresponding direction, to the more dense ether. It is a theoretical basis to create the teleportation systems.

On the basis of these considerations it is possible to design new defense systems and principally new transport systems.

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constituent of bigger system, until everything is embraced by the Biggest System, that is the Universe.

The seventh principle of the universal energy interchange is the physical realization of the law of unity and struggle of oppositions. This principle determines spontaneous creation of thermodynamic and antigravitation potentials. Any local matter mass (a body), situated in the open space, creates an exchange process with the surrounding aether volume in the way that more fine-structure fluid aether is absorbed by the body, and the less power-consuming gas aether is radiated. As the result the body as a heat engine gets energy due to the cooling of aether exteriors. At that, antigravitation forces acts between bodies and aether exteriors, which have different temperature.

This principle, which establishes the existence of antipodes of the second law of thermodynamics and Newtonian attraction, is realized mainly in cosmic scales and explains in which way the energy is created in the bowels of planets and stars and why the Universe is stable as regards to gravitation. Obviously, the most unexpected for the modern Physics is the discovery of non-traditional nuclear processes where conditional reactions of decay and fusion occur at the usage of quasimatter.

More deep research of new experimental results and of the stated above scientific principles lets to determine the priority-driven strategic tendencies in Physics, to open more entirely the laws of mechanics and

thermodynamics of many-dimensional aether, including the theory of non-traditional waves and new types of electromagnetism. At that, the supreme aim is the research of differences in aetherodynamics laws on the Earth (in a laboratory) and in outer space, the unknowing of these differences has caused logical insularity, false all-sufficiency of classical physics, which had refused as "not wanted" the aether conception and fundamental Universal laws.

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## Irving Langmuir and Atomic Hydrogen

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### *Editorial*

*In this paper Dr. Nicholas Moller describes the history of development of Atomic Hydrogen technologies in details. It is remarkable that this technology can be applied not only for welding processes but also as a clean free energy source. It is important to note that in this case the hydrogen process does not involve a consumption of hydrogen, which is not combusted in the process. Atomic hydrogen is not really a fuel but rather a medium, gateway or a super-conductor of ZPE form the vacuum of space, converting ZPE radiation and ultra-high frequency electrical energy into infrared (heat) radiation.*

This is the story of Irving Langmuir who was the first to develop a theory on Atomic Hydrogen on the basis of empirical research and experimentation. His work in this field lasted from 1909 to 1927. During this period he was employed by the Research Laboratory of General



Irving Langmuir.

Electric Company. Patents and discoveries developed by Langmuir during his time with General Electric were to a considerable extent instrumental in laying the foundations for what is today one of the largest corporations in the world.

The question that gave birth to this article, is why his work and discoveries on Atomic Hydrogen were the only work that received hardly any attention at all and why his revolutionary breakthrough was deprived of world attention for almost 100 years? This question becomes even more relevant when taking into consideration the high standing he enjoyed with his contemporaries (including being awarded the Nobel Prize in Chemistry)



and with his employers, which is an acknowledgement of the high commercial value of all his other work.

The answer to this question is given through a detailed account of his work on Atomic Hydrogen and followed by suggestions for new applications of Atomic Hydrogen in the field of CLEAN SUSTAINABLE ENERGY.

Irving Langmuir was born in Brooklyn, New York, on January 31, 1881, as the third of four sons of Charles Langmuir and Sadie, nee Comings. His early education was obtained in various schools and institutes in USA, and in Paris (1892-1895). He graduated as a metallurgical engineer from the School of Mines at Columbia University in 1903. Postgraduate work in Physical Chemistry under Nernst in Göttingen earned him the degree of M.A. and Ph.D. in 1906.

Dr. Langmuir returned to America and became an Instructor in Chemistry at Stevens Institute of Technology, Hoboken, New Jersey, where he taught until July 1909. Then he entered the Research Laboratory of General Electric Company at Schenectady where he eventually became an Associate Director.

Langmuir's studies embraced chemistry, physics, and engineering and were largely the outgrowth of studies of vacuum phenomena. In seeking the atomic and molecular mechanisms of vacuum phenomena he investigated the properties of adsorbed films and the nature of electric discharges in high vacuum and in an environment of certain gases at low pressures.

His work on filaments in gases led directly to the invention of the gas-filled incandescent lamp and to the discovery of atomic hydrogen. Later he applied his knowledge of atomic hydrogen in the development of the atomic hydrogen welding process.

He was the first to observe the very stable adsorbed monatomic films on tungsten and platinum filaments, and was able, after experiments with oil films on water, to formulate a general theory of adsorbed films. He also studied the catalytic properties of such films.

Langmuir's work on space charge effects and related phenomena led to many important technical developments, which have had a profound effect on later technology.

In chemistry, his interest in reaction mechanism caused him to study structure and valency, and he contributed to the development of the Lewis theory of shared electrons.

Some of the awards he received include: Nichols Medal, (1915 and 1920); Hughes Medal (1918); Rumford Medal (1921); Cannizzaro Prize (1925); Perkin Medal (1928); School of Mines Medal (Columbia University, 1929); Chardler Medal (1929); Willard Gibbs Medal (1930); Popular Science Monthly Award (1932); Nobel Prize in Chemistry (1932)(Although Niels Bohr recommended

him for the Nobel Prize in Physics, Langmuir was awarded the Prize for Chemistry. A fact that most probably bears relation to the efforts of ignoring the importance of his discoveries on the properties of Atomic Hydrogen.)'; Franklin Medal and Holly Medal (1934); John Scott Award (1937); "Modern Pioneer of Industry" (1940); Faraday Medal (1944); Mascart Medal (1950).

In addition, he was a Foreign Member of the Royal Society of London, Fellow of the American Physical Society, Honorary Member of the British Institute of Metals, and a member of the British Chemical Society (London). He had served as a President of the American Chemical Society and as a President of the American Association for the Advancement of Science.

Honorary degrees were bestowed upon Langmuir by the following colleges and universities: Northwestern, Union, Edinburgh (Scotland), Columbia, Kenyon, Princeton, Lehigh, Harvard, Oxford, Johns Hopkins, Rutgers, Queens (Canada), and Stevens Institute of Technology.

Dr. Langmuir's hobbies were mountaineering, skiing, flying. However, his biggest hobby and life passion was the pursue of the understanding of the mechanism of simple and familiar natural phenomena.

He married Marion Mersereau in 1912. They had a son, Kenneth, and a daughter, Barbara. He died on August 16, 1957 after a short illness.

### **General Electric Company**

Langmuir first entered the Research Laboratory of General Electric Company in summer, 1909, expecting that by fall he would return to Stevens Institute, where he had been teaching chemistry. Instead of assigning him to any definite work, Doctor Whitney who headed the Lab suggested him to spend several days in various rooms of the laboratory, becoming familiar with the work that was carried out there. Dr. Whitney also asked him to let him know what he found the most interesting as a problem for the summer vacation.

A large part of the laboratory staff was busily engaged in the development of drawn tungsten wire made by new Coolidge process. A serious difficulty was being experienced in overcoming the "offsetting" of the filaments. It was a kind of brittleness, which appeared only when the alternating current was run through lamps. Out of a large number of samples of wire, three had accidentally been produced which gave lamps that ran equally well with alternating and with direct current, but there was no explanation as to what had made these wires so good. It seemed to Langmuir that there was one factor that had not been considered, which was, that the offsetting possibly was due to impurities in the wire in the form of gases. He therefore suggested to Doctor Whitney that he would like to heat various samples of wire in high vacuum and measure the quantities of gas obtained in each case.

When he observed the laboratory, he had been particularly impressed with the remarkably good methods that were used for exhausting lamps. These methods were, he thought, far better than those known to scientific research workers of this time. His desire to become more familiar with these methods was undoubtedly one of the factors that led him to select an investigation of the gas content of wires for his first research.

After starting the measurements that he had planned, he found that filaments gave surprisingly large quantities of gas. Within a couple of weeks he realized that something was entirely wrong with his apparatus, because from a small filament in a couple of days he obtained a quantity of gas which had, at atmospheric pressure, a volume 7000 times that of the filament from which it appeared to have come; and even then there was no indication that this gas evolution was going to stop.

At the time one could find in the literature - for example in J. J. Thomson's book on the "Conduction of Electricity through Gases" - many statements that metals in vacuum give off gases almost indefinitely, and that it is impossible to free metals from gas by heating. Still he thought that 7000 times its own volume of gas was an entirely unreasonable amount to obtain from a filament. He spent most of the summer trying to find where this gas came from, and did never investigate the different samples of wire to see how much gas they contained. To any other researcher, it would have been much more logical if he had dropped the work as soon as he found that he would not be able to get useful information on the "off-setting" problem by the method that he had employed. Instead Langmuir continued working.

What he really learned during that summer was that glass surfaces, which have not been heated a long time in vacuum slowly, give off water vapor, and this reacts with a tungsten filament to produce hydrogen. At the same time, the vapors of Vaseline from a ground-glass joint in the vacuum system give off hydrocarbon vapors, which produce hydrogen and carbon monoxide.

This summer work was so interesting to him that he dreaded to return to the comparative monotony of teaching, and gladly accepted Doctor Whitney's offer to continue working at the laboratory. No definite program of work was laid down. At first he was given one assistant and then others to continue experiments on the sources of gas within vacuum apparatus, and a study of effects produced by the introduction of various gases into tungsten filament lamps. The truth is that he was merely curious about the mysterious phenomena that occurred in these lamps. Doctor Whitney had previously found that gases had a habit of disappearing in lamps, and no one knew where they went to, so Langmuir wanted to introduce each different kind of gas, which that he could lay his hands on, into a lamp with a tungsten filament and definitely find out what happened to that gas.

It was the universal opinion among the lamp engineers with whom he came in contact that the better vacuum could be produced in a lamp, the better lamp would be. Doctor Whitney, particularly, believed that every effort should be made to improve vacuum, for all laboratory experience seemed to indicate that this was the hopeful line of attack on the problem of a better lamp. However, Langmuir really didn't know how to produce a better vacuum, and instead proposed to study the bad effects of gases by putting gases in the lamp. He hoped that in this way he would become so familiar with the effects of these gases that he could extrapolate gas pressure to zero, and thus predict, without really trying it, how good the lamp would be if they could produce a perfect vacuum.

He found this principle of research to be extremely useful on many occasions. When it is suspected that some useful result is to be obtained by avoiding certain undesired factors, but it is found that these factors are very difficult to avoid, then it is a good idea to increase one of these factors so as to exaggerate their bad effects, and thus become so familiar with them that one can determine whether it is really worth while avoiding them. For example, if you have vacuum in lamps as good as you know you can produce, but suspect that lamps would be better if you had vacuum, say, 100 times as good it may be the best policy, instead of attempting to devise methods of improving this vacuum, to spoil the vacuum deliberately in known ways, and you may then find that no improvement in vacuum is needed or just how much better the vacuum needs to be.

During these first few years, while he was thus having a good time satisfying his curiosity and publishing scientific papers on chemical reactions at low pressures, he frequently wondered whether it was fair that he should spend his whole time in an industrial organization on such purely scientific work, for he didn't really see what applications could be made of it. Several times he talked the matter over with Doctor Whitney, saying that he could not tell where this work was going to lead them. Whitney replied that it was not necessary, as far as he concerned, that it should lead anywhere. He would like to see him continue working along any fundamental lines that would give them more information in regard to the phenomena taking place in incandescent lamps, and that he should feel himself perfectly free to go ahead on any such lines, which seemed to be interesting to him. He had been working for nearly three years in this way with several assistants working for him before any real application was made of any of his work. In adopting this broadminded attitude Doctor Whitney showed himself to be a real pioneer in the new type of modern industrial research known as *Free Research*, and thus made Langmuir the first scientist in modern history, who got tools and resources for free research.

He had to devise new types of vacuum apparatus for his study of the effect of gases. He needed particularly to be able to analyze the small quantities of gas that

existed in the tungsten lamp. With some of this special apparatus he was able to make a practically complete quantitative analysis of an amount of gas, which would occupy about  $1\text{mm}^3$  at atmospheric pressure. In this sample of gas they could determine the percentages of oxygen, hydrogen, nitrogen, carbon dioxide, carbon monoxide and inert gases.

In regard to the behavior of the different gases, which he introduced into the lamp bulb, he found that no two gases acted alike. For example, Oxygen attacked the filament and formed tungstic oxide,  $\text{WO}_3$ . It seemed to be simple enough, but the kinetics of the reaction presented many features of considerable scientific interest.

During the studying of the effect of hydrogen he observed very peculiar phenomena. A limited amount of hydrogen disappeared and became adsorbed on the bulb, where it remained in a chemically active form, which was capable to react with oxygen at room temperature even long after the tungsten filament had been allowed to cool. These suggested hydrogen atoms and seemed to confirm some conclusion, which Langmuir had already drawn from observations on the heat losses from tungsten filaments in hydrogen at atmospheric pressure. During the making squirted tungsten filaments, and sometimes during the cleaning of the drawn wire, filaments were heated in this manner in hydrogen. Because tungsten filaments melt at a temperature  $1500^\circ\text{K}$  above the melting point of platinum, it seemed to him that **tungsten** furnished a tool of particular value for the scientific study of phenomena in gases at high temperatures. From his work on lamps he knew the approximately relation between the electrical resistance of tungsten wire and its temperature, and could thus use a tungsten wire as a kind of resistance thermometer. By connecting a voltmeter and an ammeter to the tungsten filament, which was being heated in hydrogen, he could determine the temperature as well as find the heat loss from the filament in watts. He wanted to see if anything abnormal happened when the temperature was raised to the extremes, which were only possible with tungsten.

The results greatly interested him, because they showed that the energy loss through the gas was proportional to the square of the temperature up to about  $1800^\circ\text{K}$ . Then they increased at a much higher rate above that, until at the highest temperatures the energy loss was proportional to about the fifth power of the temperature. This result could only be explained if hydrogen at high temperatures was dissociated into atoms.

***The diffusion of the hydrogen atoms from the filament, and their recombination at a distance from it, would cause an enormous increase in heat conduction.***

After publishing these preliminary results, he was naturally very interested in getting more information

about the properties of these hydrogen atoms. A large number of experiments, lasted over several years, were thus made in this study of atomic hydrogen. Nearly all of these experiments would seem quite useless, or even foolish, to a man who was making a direct and logical attack on the problem of improving of tungsten lamps.

When nitrogen at low pressure was introduced into a bulb containing a tungsten filament at extremely high temperatures, such as  $2800^\circ\text{K}$ , the nitrogen disappeared at a rate, which was independent of its pressure. This suggested that the reaction velocity was limited by the rate at which the tungsten evaporated from the filament. To check this hypothesis the rate of loss of weight of filaments at various temperatures was measured in perfect vacuum. This rate varied with the temperature in accordance with known thermodynamic laws, and it was concluded that the loss of weight was really due to evaporation but not to chemical action of residual gases or to electric currents, which passed from the filament to the surrounding space.

A comparison of the rate of disappearance of nitrogen with the loss of weight in the filament showed that one molecule of nitrogen disappeared for every evaporated atom of tungsten. A brown compound,  $\text{WN}_2$ , was formed, which deposited on the bulb and decomposed when water vapor was introduced, forming ammonia gas.

From time to time the question kept arising - how good would a lamp be if it had a perfect vacuum? And now he got an answer. Hydrogen, oxygen, nitrogen, carbon monoxide, and in fact every gas that he introduced, with the exception of water vapor, did not produce blackening of the lamp bulb. The serious blackening that occurred with only small amount of water vapor depended upon a cyclic reaction in which atomic hydrogen played an essential part. Molecules of water vapor in contact with the hot filament produced a volatile oxide of tungsten and hydrogen was liberated in atomic form. The volatile oxide deposited on the bulb where it was reduced to the metallic state by the atomic hydrogen, while the produced water vapor returned to the filament and caused the action to be repeated indefinitely. Thus, a minute quantity of water vapor may cause a relatively enormous amount of tungsten to be carried to the bulb.

The question then arose whether the amount of water vapor, which might still exist in a well-exhausted lamp, were responsible for the blackening which limited the life or the efficiency of many of these lamps. They made some tests in which well-made lamps were kept completely immersed in liquid air during their life, so that there could be no possibility of water vapor coming in contact with the filament. The rate of blackening, however, was exactly the same as if no liquid air had been used.

Having thus proved that the blackening of a well-made lamp was due solely to evaporation, he could conclude

with certainty that the life of the lamp would not be appreciably improved even if they could produce a perfect vacuum.

Early in 1911 William Stanley, one of the pioneers in the electrical industry, felt that General Electric should do more fundamental work in connection with heating devices. Since Langmuir had become interested in the physics of heat losses from filaments in gases, he was glad to work along these lines and therefore undertook to direct a small laboratory at Pittsfield, Massachusetts, USA, where he spent about two days a week. Besides studying heat losses from plane surfaces at various temperatures he measured heat losses from wires of various sizes in air at different temperatures, working at first with platinum wires, and was able to develop a theory of heat losses, which enabled him to calculate the loss from a wire of any size at any temperature in any gas, provided of course, that the gas did not dissociate at high temperatures.

Having now a definite theoretical basis to calculate the normal heat loss by convection, he was able to prove that the abnormal rate of heat loss previously observed with tungsten filaments at high temperatures in hydrogen was due to actual dissociation; in fact he was able to calculate the heat of dissociation and the degree of dissociation at different temperatures.

In order to confirm these conclusions, he undertook experiments with heated tungsten wires in mercury vapor at atmospheric pressure to measure heat losses under such conditions. A little later he experimented with nitrogen and found that nitrogen did not dissociate either. In both of these gases the filaments could be maintained at temperatures close to the melting point for a far longer time than if heated in vacuum at the same temperature. Thus the rate of evaporation was greatly decreased by the gas, many of evaporating tungsten atoms being brought back to the filament after striking the gas molecules.

By this time he was familiar with all harmful effects, which gas can produce in contact with filaments and knew under what conditions these bad effects could be avoided. In particular, he realized the importance of avoiding even almost infinitesimal amount of water vapor. Thus, when he found a marked effect of mercury vapor and nitrogen in reducing the rate of evaporation, it occurred to him that it might be possible to operate a tungsten filament in gas at atmospheric pressure and obtain a long useful life. Of course, it would be necessary to raise the temperature far above that at which the filament could be operated in vacuum in order to compensate the serious loss in efficiency due to convection. Whether or not the increased rate of evaporation, due to this increase in temperature, would be more important than the decrease in the rate due to the gas was a matter that could only be tested by experiment.

After a series of detailed experiments, they were soon able to make lamps having a life of over 1000 hours with

efficiency about of 80 to 40 percent better than could have been obtained with filaments in vacuum. General Electric made astronomic fortunes out of this result.

**The invention of the gas-filled lamp is thus nearly a direct result of experiments made for the purpose of studying atomic hydrogen.** Langmuir had no other objective in view when he first heated tungsten filaments in gases at atmospheric pressure. Even at the time that he made these experiments at higher pressures, they would have seemed to him useless if his prime objective had been to improve the tungsten lamp. However, as it turned out, this preliminary work, not only produced a superior lamp but also resulted in the following important conclusions:

- The energy loss from heated wires in various gases can be readily calculated by simple equations.
- For nitrogen and mercury vapor the results calculated in this way agree well with experimental results up to temperatures as high as 3500°K.
- With air and carbon dioxide similar agreement was obtained up to the melting point of platinum.
- In the case of hydrogen, however, there was agreement only up to about 2100°K. Above that the energy loss increased extremely rapidly such that at 3300°K it was four or five times the calculated value.
- This was explained by assuming that hydrogen at very high temperatures is dissociated into atoms.
- A theory of the heat conductivity of a dissociating gas was developed.
- The heat of reaction and the degree of dissociation at various temperatures was thus calculated.

Experiments at low pressures proved that the phenomenon was a true dissociation, and that the volume of the dissociation products was approximately twice the volume of the original hydrogen. That is, the dissociation took place according to the equation  $H_2 \rightarrow 2H$ .

- There was much evidence that the dissociation was not electrolytic.
- Nitrogen, even at 3500°K, was not dissociated at atmospheric pressure. That is, its dissociation did not exceed 5%, at 3500°K.
- The following quantitative results were obtained. The heat of reaction at constant volume for  $2H \rightarrow H_2$  was 550,000 joules, or 130,000 calories. At constant pressure it was approximately 575,000 joules, or 136,000 calories at 3000° K.
- The degree of dissociation at any temperature,  $T$ , was given by the equation

$$\log \frac{p_1}{\sqrt{P - p_1}} = 2.665 - \frac{14,400}{T} + \frac{1}{2} \log T$$

Here  $p_1$  is the partial pressure of the hydrogen atoms (in atm), and  $P$  is the total pressures (in atm).

From this equation the free energy of formation of hydrogen molecules from atoms can be calculated.

### Flames of Atomic Hydrogen

Armed with fresh knowledge, Langmuir continued his work exploring the new phenomenon of Atomic Hydrogen and found that the heat carried away from an incandescent wire by a surrounding inert gas at ordinary temperatures increases roughly in proportion to the 1.9 power of the absolute temperature  $T$  of the filament. This relation holds, for example, for such gases as nitrogen, argon, and mercury vapor up to the temperature of melting tungsten, 3660°K.

In the case of hydrogen, however, abnormal results were obtained in experiments made at high temperatures. Up to about 1700°K the normal exponent of 1.9 was observed, but at higher temperatures the exponent increased until at 2600°K and above it was about 5.0. At 3400°K the heat conducted by hydrogen was twenty-three times as high as that carried by nitrogen under similar conditions.

Nernst in 1904 had developed the theory of heat conduction in a dissociating gas and had shown that dissociation results in a great increase in the heat conductivity. The dissociation products diffuse from the hot portions of the gas into the cold portions and there, by recombining, give up the large energy of the reaction. This suggested, as mentioned earlier that the abnormal heat conductivity of hydrogen at high temperatures was due to dissociation of the hydrogen into atoms according to the reaction  $H_2 \rightarrow 2H$ .

By means of theoretical considerations it was possible to determine the degree of dissociation and the heat of the reaction by which atoms combine to form molecules. The results that were published in 1915 gave 90,000 calories as the heat of combination of 2 grams of hydrogen atoms at constant pressure and at 3000°K. The degree of dissociation,  $X$ , expressed as the fraction of the molecules which have been dissociated, was found to be, at atmospheric pressure, 0.00165 at 2000°K, 0.0109 at 2400°K, and 0.0421 at 2800°K.

Niels Bohr, one of the most prominent theoretical physicist of the time and a close friend of Langmuir, calculated in a valuable and wonderfully suggestive paper on the Constitution of Atoms and Molecules (*Phil. Mag.* XXVI, p.863, 1913), the heat of formation of hydrogen molecules from the atoms to be 60,000 calories per gram-molecule. He pointed out that this value was "considerably less than the value of 130,000 found by Langmuir (*J. Amer. Chem. Soc.* XXXIV, p. 860, 1912) by

measuring the heatconduction through the gas from an incandescent wire in hydrogen."

In order that the results obtained by Langmuir should not bear false evidence against the theory derived by Dr. Bohr, he gave a preliminary account of some more recent measurements carried out by Mr. G.M.J. Mackay and himself, on the dissociation of hydrogen.

The method adopted was similar to that previously used, namely, to determine the heat-loss from electrically heated tungsten wires in hydrogen. In these experiments, however, very much greater care was used in determining the temperatures of the wires and in obtaining extremely pure hydrogen. Pressures of hydrogen ranging from 1 mm up to 760 mm of mercury were used. Still further experiments were made at pressures from 0.01 mm up to 20 mm pressure.

The measurements at low pressures gave very interesting results: At about one-tenth of an atmospheric pressure in hydrogen, the total heat-loss from filaments heated to very high temperatures (3000°K) was several times as great as in hydrogen at atmospheric pressure.

By subtracting the heat-loss due to *normal* heat-conduction from the *total* observed heat-loss, the heat carried by diffusion of hydrogen atoms was obtained. By plotting the logarithm of this quantity against the reciprocal of the absolute temperature, straight lines were obtained in each experiment. The slopes of all these lines were practically equal, no matter what pressure of the hydrogen was used (above 10 mmHg).

On the assumption that the diffusion coefficient varies with the 3/2 power of the temperature, this lead to the result that the heat of formation of hydrogen is about 76,000 calories per gram-molecule, as against 130,000 previously found. The reason for the high value of the latter figure is that it was based on a calculation of the actual value of the diffusion coefficient of hydrogen atoms through ordinary hydrogen. These results showed that the actual degree of dissociation was much smaller than that previously found, and that even at 3500°K hydrogen was probably not dissociated to a very great extent.

Further measurements finally suggested the heat of recombination to be 90.000 calories per gram/molecule, that is still a value of extraordinary proportions.

### Chemical Properties of Atomic Hydrogen

While the measurements of the heat losses from filaments in hydrogen were being made, other experiments showed that hydrogen which had been in contact with heated filaments acquired entirely new chemical properties, and they were quite in accord with those to be expected of an atomic form of the element.

A very remarkable phenomenon occurred when a mixture of oxygen and hydrogen at low pressure was admitted to a bulb containing a filament at 1500°K. The

oxygen reacted with the filament rapidly to form  $WO_3$ , which evaporated at this temperature as fast as formed. The oxygen thus cleaned up at a rate proportional to its own pressure and the pressure of oxygen thus fell to half value about every 2 minutes in a bulb of ordinary size. All this occurred exactly as if no hydrogen were present. During this time there was no measurable disappearance of hydrogen. After 10 or 15 minutes the oxygen was nearly all gone and then for 5 or 10 minutes more the gas pressure remained apparently constant and corresponded exactly to that of the hydrogen which was admitted.

Then suddenly, when the pressure of oxygen was low enough ( $10^{-9}$  mm), the hydrogen pressure began to drop by dissociation and in a few minutes the pressure fell practically to zero. Water vapor has an effect similar to oxygen in preventing the dissociation of hydrogen. At filament temperatures of  $1750^\circ\text{K}$  some of the hydrogen disappeared while the oxygen was cleaning up, but the kink in the curve still occurred when the oxygen was gone. **Water vapor and oxygen are thus powerful catalytic poisons for the reaction of the hydrogen dissociation.**

#### **Arcs in Hydrogen at Atmospheric Pressures**

Several years earlier in the General Electric laboratory studies were made of arcs between tungsten electrodes in various gases. Arcs in hydrogen were remarkable because of the high voltage drop and small cross section. A 10-ampere, direct-current arc between heavy tungsten electrodes about 7 mm apart in a bulb containing pure hydrogen at atmospheric pressure appeared as a sharply defined, brilliant red line about 0.5 mm in diameter along which the potential gradient was 150 volts per centimeter, making a power dissipation of 1500 watts per centimeter of length, this being about fifteen times as great as in nitrogen or argon. This abnormal behavior of hydrogen was then attributed to the dissociation which apparently carried energy so rapidly out of the arc.

#### **Arcs in Hydrogen at Low Pressures**

In attempting to obtain the Balmer spectrum of hydrogen without contamination by the secondary spectrum, they built very long vacuum tubes of moderate bore, in which they passed currents as large as 20 amperes through moist hydrogen at about 0.5 mmHg pressure. They observed many remarkable phenomena. Short pieces of tungsten wire projecting into the discharge were heated to incandescence, although a fine thread of glass or a platinum wire in a similar position was apparently not heated by the discharge.

On drying the hydrogen with phosphorus pentoxide the secondary spectrum (due to molecular hydrogen) appeared strongly and the Balmer spectrum (due to atomic hydrogen) nearly disappeared. The heating of the tungsten wire was also prevented by drying the hydrogen.

In correspondence with Professor Wood, Langmuir pointed out that oxygen and water vapor decrease the rate of dissociation of hydrogen in contact with tungsten and must thus also tend to prevent the recombination of hydrogen atoms on a tungsten surface. He also suggested that moisture poisons the catalytic activity of the dry glass surfaces that otherwise converts atomic into molecular hydrogen. Thus with moist hydrogen the tube becomes filled with nearly pure atomic hydrogen and the diffusion of this to the catalytically active tungsten wire causes the heating of the latter. Calculations based on the measured heat of dissociation proved that a pressure of only 0.16 mmHg of atomic hydrogen at  $500^\circ\text{C}$  would suffice to maintain a tungsten filament at  $2400^\circ\text{K}$ .

These conclusions were confirmed by Wood's observations that the walls of the tube became only slightly heated if the hydrogen was moist, whereas they were strongly heated with dry hydrogen. A tungsten wire was heated red hot even when mounted in a side tube (of 5 mm diameter) at a distance of 4 cm from the discharge tube, showing that the hydrogen atoms could diffuse in relatively large quantities out of the discharge.

**It occurred to Langmuir that it should be possible to obtain even higher concentrations of atomic hydrogen by passing powerful electric arcs between tungsten electrodes in hydrogen at atmospheric pressure and this atomic hydrogen could be blown out of the arc by a jet of molecular hydrogen directed across the arc.**

#### **Preliminary Experiments with Flames of Atomic Hydrogen**

To try out the possibility of blowing atomic hydrogen out of an arc, 20 - ampere arcs from a constant-current transformer were passed between two tungsten rods of 6mm in diameter mounted transversely in a horizontal alundum tube (10 cm diameter) through which a stream of hydrogen flowed. With voltages from 300 to 800V, arcs could be maintained with electrode separations up to 2 cm. The magnetic field of the arc caused the hydrogen to move transversely so that it became fan-shaped. Iron rods 2 or 3 mm in diameter melted within 1 or 2 seconds when they were held 3 to 5 cm above the arc.

By directing a jet of hydrogen from a small tube into the arc, the atomic hydrogen could be blown out of the arc and formed an intensely hot flame. To maintain the arc in a stable condition the electrodes were brought close together (1 to 3 mm), but the arc did not remain entirely between the electrodes, but extended as a fan to a distance of 5 to 8 mm. The flame of atomic hydrogen, however, extended far beyond the arc.

Molybdenum (m.p.  $2900^\circ\text{K}$ ) easily melted at distances of 1 or 2 cm from the arc. Near the end of the arc tungsten rods and even sheet tungsten (m.p.  $3660^\circ\text{K}$ ) could be melted.

**The use of hydrogen under these conditions for melting and welding metals proved to have many advantages. Iron can be melted without contamination by carbon, oxygen, or nitrogen. Because of the powerful reducing action of the atomic hydrogen, alloys containing chromium, aluminum, silicon, or manganese can be melted without fluxes and without surface oxidation.**

#### **Temperature of Atomic Hydrogen Flame Compared with Other Flames**

Let us suppose we could obtain atomic hydrogen in bulk at atmospheric pressure and room temperature and that we could then let this "burn" to the molecular form in a flame. What would be the temperature of this flame and how would it compare with that of other flames? Taking the heat of reaction (for 2 grams) to be 98,000 calories and taking the specific heat of molecular hydrogen (for 2 grams) to be  $6.5 + 0.0009 T$ , we find that the heat of the reaction would be sufficient to heat the hydrogen to 9200°K.

The dissociation of the hydrogen, however, would prevent the temperature from rising to any such high value. If  $x$  is the degree of dissociation at the maximum temperature reached, the available heat of recombination is only  $(1-x) 98,000$ .

**Langmuir plotted two curves based on his accumulated data. These two curves intersected at  $T = 4030^\circ\text{K}$  and  $x = 0.642$ . Thus atomic hydrogen at room temperature and atmospheric pressure would heat itself to  $4030^\circ\text{K}$  and the degree of dissociation would then be 0.642.**

There is another factor which tends greatly to increase the temperature of the atomic hydrogen flame even above the calculated value of  $4030^\circ\text{K}$ . The atomic hydrogen, instead of being originally at room temperature, is already at a high temperature at the moment of its escape from the arc. The conditions are analogous to those in an oxyhydrogen flame in which both gases are preheated. **Thus the upper limit of temperature is fixed only by the degree of dissociation of the hydrogen and the rate at which heat is lost by radiation or contact with bodies of lower temperature.**

#### **Rate of Surface Heating by Flames**

Although the high temperature of the atomic hydrogen flame is of great importance when it is desired to melt substances of very high melting point such as tungsten, a factor of even greater importance in for example in ordinary welding operations is the speed with which heat can be delivered to a surface per unit area.

If a Bunsen burner flame delivers 51 watts per sq. cm to the whole surface of a black body, it would thus heat it to a maximum temperature of  $1730^\circ\text{K}$ . If heat is applied by the flame to one side of a plate-shaped body and the heat is radiated from both sides, the maximum temperature reached would be  $1450^\circ\text{K}$ . The fact that

the Bunsen flame does not heat bodies so hot as this indicates that the rate of surface heating decreases as the temperature of the body increases. The heat reaches the surface from such a flame by conduction through a relatively stationary film of gas. The decrease in the temperature gradient when the body becomes hot would explain the lower rate of surface heating. With 1330 watts per sq. cm delivered by the atomic hydrogen flame, the temperature of a black body would rise to  $3900^\circ\text{K}$ . The power radiated from tungsten at its melting point is 395 watts per sq. cm, and 1330 watts per sq. cm should heat tungsten to about  $5300^\circ\text{K}$ .

At such high temperatures, however, the rate of surface heating by an atomic hydrogen flame must decrease because of the fact that the hydrogen remains partly dissociated so that the recombination is not complete. With surface temperatures below  $2000^\circ\text{K}$ , however, this factor would be negligible. It is probable that the rate of surface heating would be dependent not so much on the temperature gradient in the surface film of gas as on the rate of diffusion of atomic hydrogen through this film. Thus we may expect the rate of delivery of energy to a metal surface to remain nearly constant until the surface reaches a temperature of at least  $2000^\circ\text{K}$ .

#### **Total Heat Delivered to Surfaces**

It now became of interest to determine what fraction of the total energy in an arc or a flame could be delivered to a large flat surface against which the flame was directed. For this purpose a cylinder of copper 10.5 cm in diameter and 9.8 cm long was used, which weighed 7950 grams. The flame was directed against one of the flat polished ends, and the rate of temperature rise was measured. A 60-ampere AC arc using a torch like that shown on the Fig. 2 produced an atomic hydrogen flame.

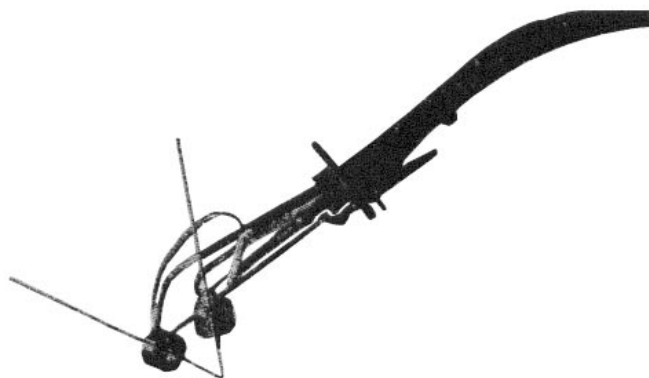


Fig. 2. Atomic Hydrogen Torch

The voltage across the electrodes was 70 volts. A wattmeter showed that the power consumption in the arc was 3510 watts, which gives a power factor of 0.84. The electrodes were tungsten rods 3.2 mm in diameter which made an angle of 55 degrees with one another. The rate of flow of hydrogen which bathed the electrodes was 14.2 liters per minute (30 cubic feet per hour). From the temperature rise of the copper block



the heat delivered to the surface was found to correspond to 3100 watts when the electrode tips were 3 to 5 mm from the copper surface. This decreased to 2800 watts at 13 mm, 2500Wt at 25 mm, and 2200Wt at 35 mm. With the arc turned off but the molecular hydrogen burning in the air, the rate of heating corresponded to 250 watts with the electrodes 6 mm from the surface. Subtracting this energy delivered by the combustion of the hydrogen in the air, we find that the energy carried to the metal by the atomic hydrogen ranged from 2850 to 1950 watts. Thus with the electrodes 3 mm from the metal 82 per cent of the power input into the arc was delivered to the copper surface. This efficiency became 78 per cent at 6 mm, 71 at 13 mm, 65 at 25 mm, and 55 per cent at 35 mm. The power corresponding to the complete combustion of 14.2 liters of hydrogen per minute is 2360 watts. Actually, only 250 watts or 11 per cent of this reaches the copper. The total energy of the arc and the flame of molecular hydrogen is 5870 watts, of which 3100 watts or 53 per cent is delivered to the copper.

An oxy-acetylene flame from a standard welding torch consuming 30.6 liters of oxygen per minute (64.8 cubic feet per hour) and 28.6 liters of acetylene per minute (60.6 cubic feet per hour) delivered energy at the rate of 4400 watts to the copper surface. A smaller torch consuming 13.7 liters of oxygen per minute and 13.0 of acetylene (29.0 and 27.5 cubic feet per hour, respectively) gave energy to the copper at the rate of 3900 watts.

#### **Application of Atomic Hydrogen Flames to Welding of Metals**

The high temperature of The Atomic Hydrogen flame, together with its powerful chemical reducing action and the avoidance of gases containing oxygen and nitrogen, render it particularly useful for welding, not only for iron and its alloys, but for such metals and alloys as contain aluminum, magnesium, chromium, manganese, etc.

Fig. 2. illustrates one of the later forms of torch used for welding. Two tungsten rods, as electrodes, are held at a definite angle to one another by easily adjustable clamps, and a jet of hydrogen is directed from a small nozzle along each of these rods near its end. The hydrogen thus bathes the heated parts of the electrodes and forms a gentle blast of gas which passes through the arc between the electrode tips, and blows the atomic hydrogen away from the electrodes so that these are not unduly heated. Other torches were also built suitable for automatic welding using machine feed. The electrodes were ordinarily separated 3 or 4 mm and the arc assumed a fan shape extending 6 to 10 mm from the electrodes. Alternating current was generally used.

To utilize the atomic hydrogen flame for the welding of metals it became important to have easy and complete control of the flame. Many different forms of welding torches were constructed and tested. The electrodes between which the arc passed were mounted at a

convenient angle to one another and were adjustable so that they could be brought into contact at a point which was exposed to a blast of hydrogen from one or more orifices. Thus the atomic hydrogen was blown out of the arc in a definite direction and formed a flame which could be brought into contact with the metal to be welded. The jet of hydrogen also served to bathe all the heated parts of the electrodes and the work, thus preventing oxidation and the introduction of impurities such as nitrogen into the weld.

Hydrogen was supplied by a tube which passed through the handle and then by flexible tubes was delivered to each of the electrode holders and escaped through the annular spaces between the electrodes and the lava insulators. Sufficient hydrogen was used not only to surround each of the electrodes to their tips but to form a blast which blew the atomic hydrogen against the work and bathed it in hydrogen.

#### **Electrical Apparatus**

Both the striking voltage and the arc voltage were higher for an arc in hydrogen than for the ordinary welding arc since there was no appreciable amount of metallic vapor generated in the arc. The standard arc welding equipment of those days was therefore not suitable as a power source for operating the atomic hydrogen torch. If direct current was used the arc could be stabilized by a series resistance or a specially designed generator of the constant-current type could also be used. With series resistance a line voltage of 250 was found to give good results.

Alternating current was more convenient and, since the arc could then be stabilized by reactance instead of resistance, greater efficiency was usually obtained. A line voltage of 350 to 400 gave satisfactory operation. Voltages as high as this were needed solely to give stability and to enable the arc to be started at any time by separating the electrodes even when these were cold.

A number of tests were made to determine the voltages required to strike an arc by means of the lever mechanism of the torch. With cold electrodes an open circuit ac voltage of 320 was needed for striking the arc. After the arc had been started and the electrode tips had reached the operating temperature a line voltage of only 150 was sufficient to restart the arc as long as the electrodes remained nearly at the operating temperature. These lower voltages could also be employed to start and maintain the arc if the electrodes were first raised to high temperature by a high current while separating them very slightly so as to have a high contact resistance or by bringing a thin tungsten rod between the separated tips of the electrodes.

It was more convenient, however, to use open circuit voltages of approximately 400V rather than to employ these special means of starting the arcs. In normal operation the drop across the arc was in the neighborhood of 80 volts. To avoid danger to the operator

the entire arc circuit was preferably insulated from ground. A motor-generator was used to give either direct or alternating current for the arc, but it was usually more satisfactory to use a specially designed transformer.

Connections that were used in most of the work to be described are shown on the Fig. 3. When the arc was not operating the electrodes were in contact by the action of the spring attached to the control lever, so that there were no voltages on the electrodes and the torch could be laid down on any material without danger of flashing the operator's eyes. To strike the arc the electrodes were merely separated by pressing the lever.

Should the open-circuit voltage at any time be impressed across the electrodes when separated, or the operator break the arc by spreading the electrodes too far apart, a relay in the arc circuit (contactor B as shown on the Fig.3) would trip the feeder circuit, in which case it was necessary for the electrodes to be brought in contact again before the main feeder circuit could be restored.

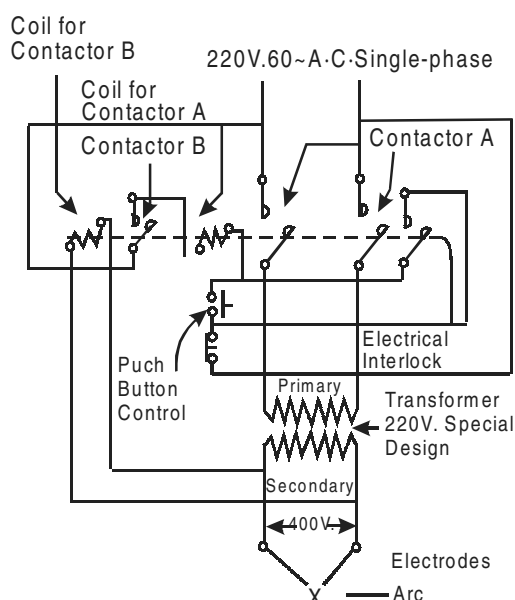


Fig.3. Circuit diagram of apparatus used with atomic hydrogen welding torch.

The voltage drop across the arc while in operation varied from 60 to 100 volts, depending on the amount of opening between the electrode tips. This voltage was nearly independent of the current, between the limits of 20A and 70 A, although a slight decrease in voltage was usually noted when the current was increased. Repeated experiments showed that the lower voltage arc (60 to 80 volts) obtained by separating the electrodes only at  $\frac{1}{16}$  or  $\frac{1}{8}$  inch had a more concentrated working zone and was the most efficient arc for most kinds of welding.

By bringing the arc closer to the surface of a larger mass of metal it was found that the metal melted very rapidly. For welding, the maximum rate of heating was desired

and this was obtained by bringing the torch so close to the metal that the lower portion of the fan shaped arc was just about in contact with the metal and this caused the arc to change its shape somewhat.

The tips of the electrodes were then usually about  $\frac{3}{8}$  to  $\frac{1}{2}$  inch from the metal. Portions of the arc could at times become shortcircuited by the metal so that the tracks of cathode spots on the metal could be seen, but this seemed to play no important part in the welding process.

## Conclusions

The above is a general account of the course of events that led to the development of the atomic hydrogen arc welding technique. Although Langmuir himself had many ideas for other applications of atomic hydrogen, such as using it in melting furnaces, and although General Electric themselves were aware of the vast potential of atomic hydrogen (as expressed by the editor of the General Electric Research Laboratory Publication "...The point of inception of many important practical processes can be found in researches in pure science. Following Dr. Langmuir's discovery of atomic hydrogen, conclusion was reached that flames of this gas make possible new applications of far-reaching importance"), no subsequent effort was made to develop neither the welding method nor any other application using atomic hydrogen.

In spite of the obvious value of the process, industry's excuse for laying the process aside was that it had been 'replaced' by 'better' processes such as Heliarc, TIG, and MIG welding, though *plasma arc welding* is rarely mentioned which has also almost disappeared from the market. Since plasma arc welding is merely an extension of the atomic hydrogen process, the reasons are undoubtedly the same.

As a welding process, atomic hydrogen arc welding was "obsolesced" by MIG and TIG neither of which compare to its welding efficiency and uses. Considering that atomic hydrogen arc welding hardly got off the ground before it was replaced, it is not a far fetched thought to assume that the interests of welding suppliers and electric power companies were being nursed so that more archaic tanks, transformers, gauges, torches, electrodes, gases, fluxes, power etc. could continue to be sold at profit.

The reader is reminded of the fact that Langmuir's experiments and findings were taking place almost 100 years ago. Since then, technology has progressed dramatically in many fields. If Langmuir had at his disposal the knowhow and technology of today, our world may have looked different.

However, we are now in the fortunate situation that we do possess the data of Langmuir's findings, which can be combined with today's technological knowhow. The obvious direction in which to look is the same direction that seems to have been the fundamental

reason for Langmuir's discoveries having been swept under the carpet: CLEAN AND ABUNDANT ENERGY.

If anyone looks up to find any information on atomic hydrogen arc welding, only a few lines will appear, simply informing that "the arc is maintained between two metal electrodes in an atmosphere of hydrogen. Shielding is obtained from the hydrogen. Pressure and/or filler metal may or may not be used. Although the process has limited industrial use today, atomic hydrogen welding is used to weld hard-to-weld metals, such as chrome, nickel, molybdenum steels, Inconel, Monel and stainless steel. Its main application is tool and die repair welding and for the manufacture of steel alloy chains. Also used in special military welding requirements."

**Nothing is mentioned of the extraordinary properties of atomic hydrogen, nor of its potential for the use as energy to drive the wheels of mankind.** However, and quite surprisingly, in one edition of Van Nostrand's Encyclopedia of Science it was stated "*Hydrogen molecules dissociate to atoms endothermically at high temperatures (heat of dissociation about 103 cal/gram mole) in an electric arc, or by irradiation*" ...."*the hydrogen atoms recombine at the metal surface to provide heat required for welding.*" What is surprising here is that the actual energy value needed for the dissociation of the hydrogen molecule is given, but the calorific value for the recombination of the atoms into molecules is strangely omitted.

From Langmuir's experiments and findings we know that the minimum calorific value for the recombination of atoms was agreed to be in the region 90.000 cal/gram molecule. In other words we have an input energy that 103 cal/gram molecule and an output energy of 90.000 cal/gram molecule. In conventional science this seems to be violating the law of conservation of energy. Langmuir explained this (however, not very convincingly) by the heat being carried forward from the arc to the metal surface. One area which certainly deserves the attention of modern science, is the replication of Langmuir's experiments using high-tech measurement equipment.

During the 1920s there was a general scientific consensus in the community of theoretical physics, that the space between the nucleus of the atom and its orbiting particles, was empty space, vacuum. It was not before the late 1950s that the existence of Zero Point Energy was discovered by the Dutch physicist M. J. Sparnaay. He continued the experiments carried out by Hendrick B. G. Casimir in 1948 which showed the existence of a force between two uncharged plates that arose from electromagnetic energy surrounding the plates in a vacuum.

Mr. Sparnaay discovered that the forces acting on the plates arose from not only thermal energy (heat) but also from another type of radiation now known as classical Zero Point Energy. Mr. Sparnaay determined

that not only did the zero point electromagnetic energy exist in a vacuum but also that it persisted even at a temperature of absolute zero. The term Zero Point Energy (ZPE) has been based on the concept that even if matter were cooled down to absolute zero (minus 273°C), in terms of its temperature, the energy field still remains.

Because it exists in a vacuum, ZPE is homogeneous (uniform) and isotropic (identical in all directions) as well as ubiquitous (exists everywhere). In addition, the intensity of the energy at any frequency is proportional to the cube of that frequency. Consequently, the intensity of the energy field increases without limit as the frequency increases resulting in an infinite energy density for the radiation spectrum. With the introduction of the ZPE into the classical electron theory, a vacuum at a temperature of absolute zero is no longer considered empty of all electromagnetic fields. **Instead, the vacuum is now considered as filled with randomly fluctuating fields having the ZPE spectrum.**

The special characteristics of ZPE are, as mentioned above, that it has a virtually infinite energy density and that it is ubiquitous (even present in outer space), which makes it very desirable as an energy source. However, because high energy densities exist at very high frequencies, and because conventional methods are only able to convert or extract energy efficiently at lower frequencies, effectively tapping this energy source has been unavailable using conventional techniques....*Until now!*

Had Langmuir been familiar with ZPE, he would most certainly have reached other conclusions in terms of explaining the extraordinary energy properties of atomic hydrogen. As it was proven by Langmuir, the volume of the hydrogen when dissociated into atoms increases to the double of the volume of its molecular state. Upon recombination, heat energy is released to the tune of 90.000 cal/gram molecule. When incorporating ZPE in the explanation of the hydrogen process, it could be argued **that the hydrogen is not really a fuel but rather a medium, gateway or a super-conductor of ZPE from the vacuum of space, converting ZPE radiation and ultra-high frequency electrical energy into infrared (heat) radiation.** On recombination into molecules the ZPE is "squeezed" out, releasing the absorbed energy.

Actually since heat is infra-red spectrum radiation, the process can be conceived as a means of converting ZPE from an ultra-penetrating cold spectrum radiation, to a mass-reactive infra-red heat spectrum radiation, and that is the proximate source of so called FREE ENERGY, in the form of exothermic heat radiation. ZPE can be analogized to a concentrate of sunshine, except it penetrates all matter all the time and is not affected by day or night, so it can be converted into usable energy at all times with the appropriate technology, such as the atomic hydrogen process. The apparent source of the anomalous exothermic heat produced in "Cold Fusion" is also based on atomic hydrogen.

# ATOMIC HYDROGEN FURNACE

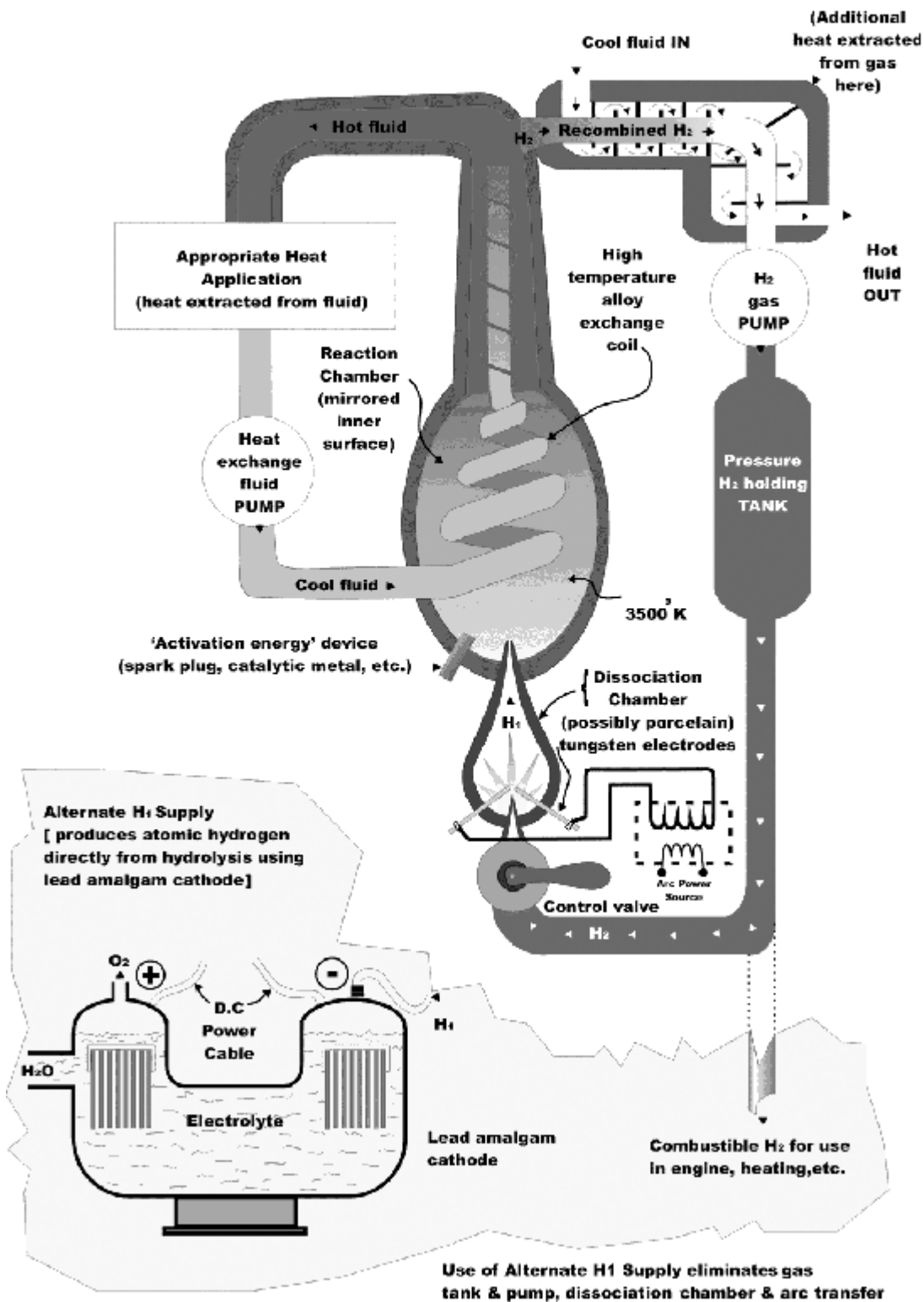


Fig.4

**It is important to note that the hydrogen process does not involve a consumption of the hydrogen as it is not combusted in the process.** It is merely dissociated and recombined and can therefore be recycled over and over again without consuming more hydrogen than the quantity used to start with.

So how do we move forward and develop a feasible technology that harnesses this abundant and clean source of energy? The answer is simple. Take Langmuirs work, dust it of a bit and upgrade it by applying modern technology and knowhow. The basic design in Fig. 4. should serve as a source of inspiration for researchers to accept the challenge and pour their attention in that direction.

Today we have extensive knowledge of materials, heat-exchangers and direct heat converters producing electricity from heat without any movable parts by using photo-voltaic technology. Even an atomic hydrogen torch is now available in the market (see Fig.5.), that could eliminate the use and consumption of Tungsten which unfortunately is becoming a relatively scarce commodity and therefore increasingly expensive.



Fig.5

**This Atomic Hydrogen source works by thermally dissociating hydrogen in an electron bombardment heated tungsten capillary and was developed for the following applications:**

- Damage free in situ cleaning e.g GaAs, InP, Ge and Si. Removal of residual oxygen and carbon.
- Low temperature cleaning
- Surfactant - improvement of layer properties during growth
- Post growth surface treatment/improvement
- Chemical passivation and surface reconstruction
- Annealing of amorphous silicon

However, modifying this torch to serve an Atomic Hydrogen Energy Generator should not represent a big problem. Langmuirs method of dissociating hydrogen could also be improved considerably by bringing down the expenditure of electric power and by increasing the degree of dissociation as well as the degree of recombination at the catalytic metal surface.

Relative simple and inexpensive research will do the job in a very short period of time. The investment of time, work and funds is so negligible in comparison to the potentially gigantic rewards, that it should appear very difficult for any researcher in any relevant field to find a viable excuse for remaining inactive in this respect.

Below is a comparison of values for commercial fuels in MJ/kg (megajoules/kilogram):

	<b>Gross</b>	<b>Net</b>
Hydrogen	141.9	120.0
Carbon to Carbon monoxide	10.2	-
Carbon to Carbon dioxide	32.8	-
Sulfur to Sulfur dioxide	9.16	-
Natural Gas	53.1	48.0
Liquefied petroleum gas	49.8	46.1
Aviation gasoline	46.0	44.0
Automotive gasoline	45.8	43.8
Kerosene	46.3	43.3
Diesel	45.3	42.5

The value at the top of the list is for **molecular** hydrogen as opposed to the value of **atomic** hydrogen which is over ten times higher.

The value at the top of the list is for **molecular** hydrogen which does not even come anywhere close to the energy value of **atomic** hydrogen. These figures alone, should be enough to attract both funding and brainpower to research. Due to the connotations that the word "atomic" has in everyday language, the reader is reminded that the term "Atomic Hydrogen" does not in any way imply the existence of nuclear radioactivity. The term is used solely to distinguish between molecular and atomic hydrogen. The Atomic Hydrogen Process is 100% CLEAN and SAFE.

***When you add the fact that the hydrogen is not consumed in the "burning" process, and can thus be recycled, it should become very clear to any scientist, humanist, environmentalist, business executive and indeed to every human being that is concerned about the state of our wonderful planet, that no more time should be wasted.***

The time has come for removing the responsibility of defining the energy policies and structures of the future from the hands of the established energy industries, and place it in the hands of men of science who will work for the preservation of the environment that sustains all life on Earth. Men who will work for the economic development of the third world by means of providing clean, abundant and inexpensive energy technologies.

Such initiative will only succeed when massively supported by the visionary captains of industry who will have the courage to dismantle the existing and

scandalous energy grid which now envelopes our planet, by investing in the production and marketing of small energy generators for individual households, factories, transport etc.

Once such a generator has been acquired by the consumer, his further energy requirements will be covered for *FREE*, giving him independence in terms of

energy as well as increased buying power any other economic development.

However, before industry will move, Science and the Individual in society must join hands and raise a highly visible flag, proclaiming the desirability and the feasibility of such technologies.

Nicholas Moller, August 2001.

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## Scalar Wars The Brave New World of Scalar Electromagnetics

Bill Morgan

*"Electric power is everywhere present in unlimited quantities and can drive the world's machinery without the need of coal, oil, gas, or any other of the common fuels." Nikola Tesla*

*"At any point and at any time, one can freely and inexpensively extract enormous EM energy flows directly from the active vacuum itself." Tom Bearden*

(Published in short by Alexander V. Frolov's edition)

***Editor's note: In this very interesting article you can find important Bearden's idea on scalar electromagnetism and its relation with MEG (motionless electromagnetic generator). I removed from original text most of text about weaponization of this technology.***

For the past six months I have been undergoing the greatest **paradigm shift** I have ever had to go through. It has rattled my nerves and shaken my bones. This intense adjustment of my "world" has come about by studying the information given by Col. Tom Bearden at his website Cheniere. The new knowledge there has necessitated a total revision of my ideas about physical reality, the world we live in, and the future of humanity. This paradigm shifting even actually made me dizzy on certain days as I tried to absorb and digest Bearden's vast amount of information. I am not a scientist at all, just a layman, and I have little comprehension of the math and high physics of this new science called **"Scalar Electromagnetics."** But there is a great deal of information at Cheniere which needs to become common knowledge as fast as possible, for the sake of the survival of life on earth. To that end I have put together this small primer of Bearden's ideas, as a kind of "beginner's guide" to his website. (I have tried to underline certain words and phrases which are part of the new "jargon" of talking about these "new" phenomena. Also I have taken the liberty of holding certain words and phrases to help them stick in the mind).

(Note: Throughout **"EM"** means **"electromagnetic,"** and **"LW"** means **"longitudinal wave"**)

### 1. New waves discovered

Longitudinal EM energy fills vacuum of space, the time domain of spacetime, time as compressed energy,  $E=tc^2$ , waves of time, phase conjugate wave pairs.

### Some Immediate Implications

The implications of successful engineering of the longitudinal waves are enormous, and will change the world as we know it, one way or another. Among other things, these discoveries mean that:

1. The **solutions to the energy crisis and the "oil problem" are in hand.** These oil wars are unnecessary. There is endless energy available freely from the domain of time.
2. **Unbelievably powerful weapons** are not only possible, but are already operating in several nations. The many powers of these weapons are unprecedented and mind-boggling.
3. The cure of diseases such as cancer and AIDS, in fact nearly any disease, has become possible within a few years of sufficient funding. Everyone can be made healthy and stay healthy.
4. **Mind control on a mass scale** has now become possible, and the machines to do it are already in place in certain nations. It has become possible to mentally enslave whole populations with the twist of a few dials. **So the layman will need to understand that there is a new kind of electromagnetic energy that is altogether different from what he knows, e.g. radio, TV, cell phones, etc. The ordinary EM waves that we have known about are called transverse EM waves, to distinguish them from the new longitudinal EM waves. These scalar waves do not actually exist in our "material" world, but exist only in the vacuum of empty space, or the time domain. And we must keep in mind that this vacuum of space we speak of exists all through everything. Even our bodies are mostly empty space between atoms and molecules. So the gateway to this seething ocean of energy can be there at every point in the universe. This seething ocean of energy is all around us and all through us.**

# Hydrogen Energy

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*Editorial: in this work Studennikov and Kudymov develop the problem of hydrogen energy. Their electrical hydrogen generator (EHG) is realized as a prototype of 150 KWt heat power. The authors create an artificial gravitational field by means of rotation. With this they produce cheap hydrogen and electric input is very small. Really, we believe that the authors are modest, because effectiveness of their system is more than 100%. The excessive power produced by their generator is compensated by environmental heat.*

## Letter to editor

Dear Alexander Frolov!

Thank you for your complimentary estimation of our modest work. You are right we should have more publications. Let's publish our work. Lenin sometimes gave wise thoughts such as "Idea that got the control over people masses, is a material force".

Situation with hydrogen energy in Russia is very inauspicious. To make sure that it is right, let's try to brows for "hydrogen energy" in Alta Vista Internet search system. As a result you will find thousands of websites devoted to this problem. In Russia this problem is worked out only by Kurtchatovsky Institute and our Institute. Energy Department of USA spends 200 millions dollars annually to finance R&D work on this problem. We do all this work on our enthusiasm only. The most interesting fact that now we are in the vanguard of this research. Of course, we are not able to keep our positions for a long time. In this case a critical situation can appear in Russian economy, because it is based on the export of energy resources.

With regard,  
Studennikov V.V.

## Introduction

It became absolutely evident in the last decade that the further intensive development of modern energetics and transport lead humanity to the large-scale ecological crisis. A rapid reduction of fossil fuel resources on a background of natural annual growth of energy consumption constrains industrially developed countries to extend the system of atomic energy installations. These installations increase the damage of their exploitation in a higher extent. The problem of recycling of radioactive wastes is sharply increasing.

Taking into account this alarming situation, many scientists and experts support the more rapid search of alternative non-traditional energy sources and application of new energy resources in energetics and transport. In particular, they draw attention to hydrogen. Resources of hydrogen in the waters of World Ocean are inexhaustible. Besides, the indisputable advantages of this fuel are the comparative environmental safety of usage, acceptability for heat-engines without any considerable changes in their design, high calorie content, possibility of long-term storage, transportation by existing transport network, non-toxicity, etc. However, the essential problem to get over up to the present day is the problem of diseconomy of its production. More than 600 firms, companies, concerns, university laboratories and social scientific and technical organizations of Western Europe, USA, Australia, Canada and Japan are working hardly to make hydrogen cheaper (see the magazine "Avtomobilny Transport" / "Motor Transport", #4, 1992, p. 38). Successful solution of this problem will revolutionary change all world economy and will improve our environment.

## Description

There are numerous known ways to decompose water. They are chemical, thermochemical, electrolysis and others, but all of them have one big shortcoming. A very expensive and high-grade energy is used in the technological process of hydrogen production. In its turn, to produce this energy we should spend the unprofitable fossil fuel (coal, natural gas, oil products) or electrical energy produced on electric power stations. Suffice it to say that during the traditional electrolysis in industrial conditions the electrical energy consumption to produce one cubic meter of hydrogen constitutes 18-21 MJ and total energy consumption (taking into account the production of electrical energy itself) exceeds 50 MJ. It makes hydrogen to be very expensive (about 2\$/m<sup>3</sup>).

At the same time, our planet literally bathes in the flow of heat energy, produced by the Sun, earth bowels and human activity. The problem is only to introduce this inexhaustible source of free low-grade heat to the industrial technology of hydrogen production. Now the hypothesis is developed and its theoretical scientific validation is given. According to this hypothesis there is a principal possibility to transform the heat of any origin directly to the potential chemical energy by means of water decomposition into hydrogen and oxygen in the solution of electrolyte placed in the strong artificial inertial field. ***Thereby, we can replace the traditional energy in the common energy balance of electrochemical process of water decomposition to the heat of external source and mechanical energy of inertial field.*** This natural physical and chemical phenomenon got the name of ***gravitational electrolysis***. An efficient device, electrical hydrogen generator (EHG) was designed and patented according to RST system (international application RU98/00190 of 07.10.97) to provide this electrolysis.



**It is operated by mechanical drive and works with a common temperature in the mode of heat pump.** This device absorbs the necessary heat from the environment through its heat exchanger or utilizes the heat wastes of industrial or transport energy installations. In the process of water decomposition the excessive energy applied to the drive of EHG can be transformed into electric energy on 80%. This energy then can be used in external active load. During this process from 20 to 88 energy units of low-grade heat are absorbed for every unit of consumed power. It depends on the given operation mode. This process compensates the negative thermal effect of water decomposition as a chemical reaction. In the generator of one cubic meter of operation volume (for the optimal mode with efficiency of 86-98%) we can produce 3,5 m<sup>3</sup> of hydrogen per second together with about 2,2 MJ of direct electric current. Unit heat power of EHG can vary from few tens Watt up to 1000 MWatt dependently of the technical task. Designed specific energy consumption to produce gaseous hydrogen constitutes 14,42 MJ/ m<sup>3</sup>. Since we use only free heat in this process, the cost of production of 1 cubic meter of hydrogen decreases up to 0,0038\$ and becomes 2,5-3 times cheaper than the total cost of production and transportation of equivalent volume of natural gas.

The wide range of control and nonordinary specific performance of this process allows applying the invention in big and small energetics with a guaranteed success. The application is possible in various kinds of transport, in agriculture, in municipal economy, in chemical, cement, pulp and paper, refrigeration, atomic and space industries, non-ferrous and ferrous metallurgy, for the water desalination, welding fabrication, etc.

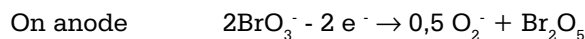
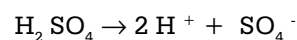
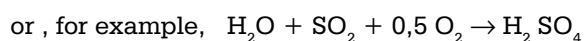
Physical essence of the operating process of EHG is very simple and it is a logical development of the known physical experiments by Tolmen and Stewart made in 1916. It is known that electrolyte dissociate in ions, which are hydrated by molecules of water, during its solution. As a result, hydrated shells of different density are formed around them. Energy of interaction of hydrated unlike ions with each other sharply decreases and becomes closer to the energy of Brownian motion of water molecules (with 18°C  $Wk = 3/2 KT = 6 \cdot 10^{-21} J$ , where K is Boltzmann constant, T is an absolute temperature). If we place the concentrated solution of dissociated electrolyte having a significant difference of anion and cation masses to the strong artificial gravitational (inertial) field (for example, to rotate it into the EHG reservoir) and the effective rate of rotation for various electrolytes and parameters of the device is 1500-45000 rpm, then ions will begin partly separating.

Heavy ions influence each other with their electrical field and they will move to the periphery of the reservoir. With this their kinetic energy will be close to the energy of heat movement. For example, for the ion BrO<sub>3</sub> having the mass of  $m = 21,26 \cdot 10^{-26} kg$  and with the peripheral velocity  $V = 330 m/s$  (the inner diameter of the reservoir is 0,14 m, rate of rotation is 45000 rpm), kinetic energy will constitute  $W = 0,5mv^2 = 11,57 \cdot 10^{-21} J$ . The extreme

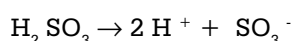
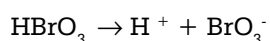
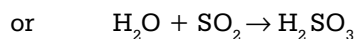
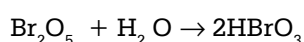
ions will press to the inner surface and will create the spatial concentrated electrical potential. **With this the resulting centrifugal force acting on ions pressed to anode (anions) will destroy their hydrate shells as the weakest ones.** The light ions are less responsive to gravitation and they surrounded with more strong shells. That's why they cannot give their molecules of water to the heavy ions. Due to these circumstances they will concentrate above the heavy ions and in the area of rotation axis (near cathode) forming the electrical potential of the opposite sign. Free electrons in anode will move to cathode under the action of spatial (volumetric) anion charge (it is a known property of Faraday cage). For some minimal (threshold) rate of rotation with given electrolyte, i.e. for some critical value of electrical potentials on electrodes, the balance of charges will be broken. Electrons will leave cathode and will ionize the molecules of hydrated shells, and these shells will pass charges to cations. **In other words, the electric disruption of this electrolytic condenser will take place and discharge of ions will begin. During this process free hydrogen will form on cathode and oxygen and anodic gases (deposit) will form on anode.**

Thus, due to the action of natural principle of energy reversibility, gravitational field will create an electrical field energetically adequate to it, which will overcome the energy of aquation and will provide an electrolysis. This process goes with the absorption of heat through the heat exchanger and it requires a constant dilution with water to get the initial concentration of the solution. Its principal energy scheme in many respects is similar to the scheme of traditional electrolysis, but in this scheme the external expensive electric current is not necessary. The environmental heat or other sources is used here.

Some formulas:



In the near-anodic space the reaction of deposit with hydration water



Here we should note four very essential features of gravitational electrolysis.

First, the work of mechanical inertial field, which is spent to the precipitation of water molecules, light and particular heavy ions, is almost fully returned to the system. It is a kinetic energy of hydrogen, oxygen and anodic gases floating to the axis, because their density is smaller than the density of solution. As a result, the sum of angular momentum of initial and final products of electrolysis becomes close to zero, i.e. mechanical work of EHG drive is consumed mainly against frictional force. The anodic deposit and floated gases react again with water and oxygen to form the initial composition of the solution.

Secondly, intensive self-cooling of the solution provides the condition for the absorption of heat from environment or other sources to compensate the endothermic effect of decomposition reaction of water, i.e. the work in the mode of high-efficiency heat pump. Flora of the Earth have been used heat for hundreds millions years to decompose water and carbonic acid gas for built-up of hydrocarbon biomass. It is known from practice that this process goes in the conditions of full darkness, for example, in old mines, caves, cellars of houses or metro tunnels. Therefore, the spontaneous thermochemical process of transition or transformation of heat to the potential chemical energy is principally possible in nature. The second law of thermodynamics proves this fact and point out the increase of entropy of the system.

Thirdly, it is able to produce direct electrical current on the external load in the case, if the rotation frequency of the reservoir is more than minimal necessary (threshold) one. Then EHG shows the properties of electric generator with voltage-current characteristic of condenser type (voltage on the clamps is in direct proportion to the external load).

Fourthly, EHG simultaneously is an electrical generator of direct current and electrolyzer.

And at last, the use of free heat of environment, heat waists of industrial, energy systems or transport in the process of hydrogen production sharply decrease production cost of this gas. All this features provide incomparable higher efficiency of the gravitational electrolysis, and therefore, higher economy.

### **Application**

The electric hydrogen generator is simple in construction and matches the assembling of various powered propulsion systems of transport, for example, automobile, bus, agricultural implement, diesel locomotive or tractor. It is good in unitizing with all these systems, with heat turbines in particular. Along with the solution of main technical and economic problem, a precondition to create the principally new, more perfect transport in near future is formed. It will be a mass

electric vehicle with big fuel distance, working on the heat-mechanic source of current.

Application of EHG as a utilizer of heat on numerous compressor plants of gas-main pipelines will allow 2-2,5 time increasing of fuel efficiency of turbounits due to the utilization of their heat waists and heat emitting during compression of natural gas to produce hydrogen, which can fill up the consumption of hydrocarbon fuel in 60% and thus provide its tangible saving, i.e. to increase the sales volume without increase of production.

The idea to cool the cargo natural gas up to the minus temperature seems to be promising. It will allow applying the elevator (gas-static) principle of creation of additional excessive pressure in the gas-main (approximately in 6-8%) as well as to increase the throughput capacity and lifetime of the pipeline. Heat extracted from natural gas can be transformed and used to the needs of economic organizations, which are situated along the trace of gas pipeline...

Energy advantages of this method are evident, especially in the mountain conditions of gas pipeline laying. Equipment of drivers of road-building techniques and various self-propelled machines with EHG will 1,7-2 times decrease the consumption of diesel or gaseous fuel. It will entail the decrease of cost of construction work.

Conversion of railway transport to systems with EHG application promises a sharp decrease of exploitation costs on the technical service of electric mains and considerable saving of electric power.

EHG on the sea crafts and riverboats can use the heat of outboard water and it will give a chance to change the atomic energy installation. It will allow increasing the efficient tonnage and ecological safety of vessel exploitation with an actual unlimited autonomy of navigation. Together with this, instead of traditional screw we can use the direct transformation of chemical energy of burnt hydrogen and oxygen to the mechanical kinetic energy of the uniflow water-jet propellers. It will simplify the design of propulsion engine of the vessel. Floating mobile electrogas generator stations can provide big coastal settlements, industrial or agricultural objects with free heat and electrical power. Design value of production of 1 MJ of heat in Russia will constitute 0,00027-0,0004 \$ and production of electrical power will be 0,0008 - 0,0011 \$.

EHG can be applied for aircraft also. In this case heat exchangers additionally should include the onboard condenser of water steam of auxiliary gas turbo-prop engine, which works on pure hydrogen-oxygen mix. It will give a chance to multiple usage of minimal recycle water in the closed circle as well as to adequately provide the vehicle with electric power. Such design will entail the decrease of the flight weight due to decrease of fuel storage, and therefore, will increase the load capacity of aircraft.

EHG on the space stations can replace gyroscopes and traditional solar batteries as well as provide the space jet engines with effective, much more cheaper and safe fuel.

Utilization of excessive heat in coalmines liquidates a sharp problem of coal mining safety. Underground burning of coal remains in unpromising mines and using of the received heat to produce hydrogen fuel and electric power will decide social problems of coal-mining regions.

Various modifications of power range of EHG can be applied in small stationary and mobile energetics, particularly in the field of energy supply of remote settlements, military and industrial objects, expeditions, farms, drying machines, greenhouses, etc. In the last case the perennial gross production of crop production in the regions of cold climate will be possible. The energy source for EHG can be the heat of any reservoirs, industrial and household drains, heat from rubbish burning and organic wastes, inner or outer air (for example, from metro, mines, residential and public constructions), various industrial vapor and gases including those from metallurgy, chemistry and heat-and-power engineering, compost pits in agriculture as well as solar, wind and geothermal energy.

Application of this invention on the acting heat and nuclear power plants will substantially increase their profitability due to the effective use of heat losses.

There is a real possibility of conversion of heat power plants to use hydrogen as a fuel. This hydrogen is produced from the transformation of heat of nearby water reservoirs. In this case the cost of electric power production will 1,5 times decrease. In ferrous metallurgy hydrogen will replace the expensive and scarce coke. It will allow organizing more effective ladle process of steel production, to heat furnaces and apply oxygen, secondary emitted during the reaction of water decomposition, in convectors, but not produce it especially for this purpose. With this, tubes of metallurgical plants will stop to release the hundreds thousands tons of carbonic acid gas to the atmosphere.

This invention is the most interesting one for specialists, which work with the problems of separation of various inorganic materials, for example, with uranium enrichment. The suggested method allows dividing isotopes U235 and U238 continuously, simply and effectively, simultaneously extracting them from the water solution as a metal powder, i.e. to combine these two different processes in one high-performance and compact device.

The simplicity of EHG design to the industrial plants gives a possibility to develop a production run of some the simplest modifications of this generator for needs of small energetics during few months and without any particular technical-organizational efforts and significant investments. Modernization of active freight automobile and bus parks in the country can be the

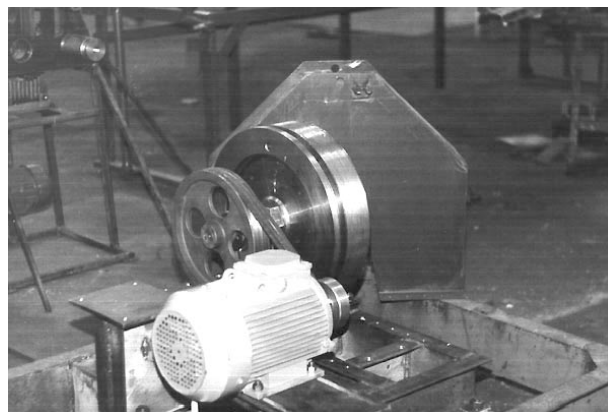
first stage of a large-scale application of the invention on transport. Some more spending and time will be required to develop EHG for other kinds of transport and powerful energy complex. But final qualitative results will be much more higher here. With serial production run of the generator in specific Russian conditions the cost of production of this device is evaluated to be 25-28\$/KWt of heat power. The estimated profitability of investment into the mastering of innovation constitutes more than 100% with the payback period of less then 1,5 years. The annual economic effect of application of the generator constitutes of about 87 \$/KWt of its heat power.

### Prototype

***You can address the authors for the detailed scientific and technical validation of operation process of gravitational electrolysis, comments and references of scientific institutions as well as design documentation and see the prototype of the generator.***

### Main features of the prototype of electrical hydrogen generator.

1. Rotation frequency of the rotor, rpm	13000
2. Electrical drive capacity, kWatt	5
3. Productivity on hydrogen, liter per second	12,3
4. Heat power, kWatt	150
5. Mass, kg	143



*Editorial: below there is an information on interesting organizing aspects in the deal of development of the "Gravitational Electrolysis" technology.*

*On January, 2002 Mr. Studennikov presented a press release about GenOil Inc. He claimed that deal between Hydrogen Solutions Inc. and GenOil Inc was illegal. The new company Hydrogen Solution Inc. was created without participation of Dr. Studennikov who was one of principal co-authors of the technology. This fact violates author's rights, which officially belong to EHG Technology L.L.C. (co-owners are Mr. Studennikov and Mr. Kudimov).*

*Dr. Studennikov has an intention to appeal against Hydrogen Solutions Inc.*

# About Strange Effects Related to Rotating Magnetic Systems

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## Abstract

The basic hypothesis of topological geometrodynamics (TGD) is that spacetime is representable as a 4-surface in 8-dimensional space  $M^4_+ \times CP_2$ . The notion of many-sheeted spacetime forced by this hypothesis implies numerous new physical effects including gravitational anomalies, the possibility of negative energy spacetime sheets makes possible the overunity energy production and classical communications to the geometric past. The geometrization of the classical gauge fields in turn predicts the existence of long range colour and electroweak gauge fields, in particular classical  $Z^0$  field, which gives rise to macroscopic effects resembling those assigned usually with torsion fields. In this article the strange findings about the physics of rotating magnetic systems are discussed in order to illustrate the new physics predicted by TGD.

## Classical TGD in nutshell

Topological Geometro-Dynamics (TGD) is a unified theory of fundamental interactions, which appeared as an attempt to construct a Poincare invariant theory of gravitation [1,2,3,4]. Spacetime, rather than being an abstract manifold endowed with a pseudo-Riemannian structure, is regarded to be the 4-surface in the 8-dimensional space  $H = M^4_+ \times CP_2$ , where  $M^4_+$  denotes the interior of the future light cone of the Minkowski space (to be referred as a light cone in the sequel) and  $CP_2 = SU(3) / U(2)$  is the complex projective space of two complex dimensions [1]. The identification of spacetime as a submanifold of  $M^4_+ \times CP_2$  leads to Poincare invariance broken only in cosmological scales and solves conceptual difficulties related to the definition of the energy-momentum in General Relativity. Sub-manifold geometry, being considerably richer in structure than the abstract manifold geometry, leads to a geometrization of all basic interactions and elementary particle quantum numbers. In particular, classical electroweak gauge fields are obtained by inducing the spinor curvature of  $CP_2$  to the spacetime surface.

**TGD approach forces a generalization of the conventional spacetime concept to what might be called many-sheeted spacetime.** The topologically trivial 3-space of General Relativity is replaced with a "topological condensate" containing matter as particle like 3-surfaces "glued" to the topologically trivial background spacetime sheet by connected sum operation. Spacetime sheets have outer boundaries and

form a hierarchical structure. Macroscopic material bodies are identified as 3-surfaces with boundary identified as the outer surface of the macroscopic body. This implies a radical reformulation of the condensed matter physics. Spacetime sheets are connected to each other by wormhole contacts and join along boundaries bonds. Various new physical effects related to the many-sheeted spacetime concept are described in four books about TGD: see for instance, the chapters "TGD and Nuclear Physics" and "Anomalies Explainable by TGD Based Spacetime Concept" in [2]. Many-sheeted spacetime concept is especially important in TGD inspired theory of consciousness and its applications to biosystems [3,4].

## Various new physics effects related to many-sheeted spacetime concept

Many-sheeted spacetime concept implies several new physical effects. Effects important in the recent context are the following.

- a) Topological field quantization: classical fields have kind of a Bohr orbit representation as spacetime sheets. For instance, magnetic field decomposes to magnetic flux tubes with quantized magnetic fluxes so that spacetime 'ends' at the boundaries of magnetic flux tubes.
- b) **Spacetime sheets can have negative time orientation and negative energies.** This makes possible **effective over unity energy production** and classical signalling to the direction of geometric past (in TGD subjective time and geometric time are two different notions).
- c) Gravitational flux from a given spacetime sheet can be distributed in several manners among larger spacetime sheets in the hierarchy and effective gravitational flux from this spacetime sheet (its effective gravitational mass) to a given spacetime sheet can thus vary: this implies gravitational anomalies and can lead to an effective variation of the gravitational coupling constant. **Also the reduction of gravitational mass of rotating body becomes possible by a mechanism to be described in more detail below.**
- d) Vacuum can carry purely geometric charge densities: the electric potential associated with a rotating magnetic disk provides an example of this kind of effect observed already by Faraday. In Maxwell's theory this charge density must be due to charged particles.
- e) TGD predicts the existence of classical long-range  $Z^0$  fields above cellular length scale. In particular,  $Z^0$  magnetic fields are possible even when system has a vanishing  $Z^0$  charge density (neutrinos screen the  $Z^0$  charge of atomic nuclei). **The effects thought to be due to torsion fields [8,9] could be due to classical  $Z^0$  fields.** Large parity breaking effects in long length scales are the signatures of these fields.

Two examples of new physical effects not directly related to the recent context deserve to be mentioned because of their fundamental role in TGD Universe.

- a) The so-called 'massless extremals' (MEs) represent classical gauge fields propagating with light velocity without dispersion. The propagation of energy is channelled and the lightlike vacuum current at given point is completely non-deterministic so that classically **MEs are optimal for communications**. The lightlike vacuum current generates coherent photons and MEs act as quantum holograms. MEs play a key role in TGD inspired theory of consciousness [3,4].
- b) Manysheeted spacetime makes possible macroscopic quantum phases at non-atomic spacetime sheets, which contain very low densities of particles and can be in extremely low temperatures. In particular, the flux tubes of Earth's magnetic field carry ionic supra phases. These macroscopic quantum phases are crucial for TGD based model of biosystems [3,4].

### **The effects related to rotating magnetic systems and many-sheeted spacetime concept**

In the sequel the effects reported by Roshchin and Godin in their article 'An experimental investigation of the physical effects in a dynamic magnetic system' [5] are discussed as a possible manifestation of various new physics predicted by TGD. A more general discussion of various anomalous effects can be found in the chapter "Anomalies explainable by TGD based spacetime concept" of [2]. The model discussed here involves also new and crucial aspects, which became clear during writing of this article.

### **Gravitational anomalies and many-sheeted spacetime**

TGD spacetime is many-sheeted surface in  $H = M^4_+ \times CP_2$ , which can be regarded as the future lightcone of Minkowski space with points replaced with  $CP_2$  having size about  $10^4$  of Planck lengths. One can visualize the spacetime sheets as almost parallel pieces of plane glued together by wormhole contacts and also connected by join along boundaries bonds (for illustrations see my homepage <http://www.physics.helsinki.fi/~matpitka/illua.html>). The distance between the sheets is about  $CP_2$  radius.

**This makes possible antigravitation like effects** since a macroscopic object (itself a spacetime sheet containing hierarchy of smaller spacetime sheets glued to it) can feed its gravitational flux to several spacetime sheets. By modifying somehow the standard distribution of gravitational flux between various spacetime sheets, one could produce gravitational anomalies at a given spacetime sheet. More precisely, what happens is that the gravitational force experienced by the object is replaced with

$$F_{gr} = \sum_i M_i F_{gr,i},$$

where the summation over spacetime sheets is understood. This means that the simple Newtonian picture fails and the determination of the gravitational constant can give varying values.

The first idea to come into mind is that **this effect might be responsible for the huge loss of weight in the experimental arrangement studied by Roshchin and Godin [5]**. Part of the gravitational flux of the rotating magnet would flow to some other spacetime sheet than 'ours' so that magnet would loose part of its weight. The experiments suggest that effect can be very large (30 per cent loss of effective weight). A little thought experimentation however suggests that this mechanism very probably does not explain the observed loss of weight.

The loss of weight should relate directly to the rotation of the system and this serves as a hint about what might be involved.

- a) The gravitational flux of the rotating system runs to larger spacetime sheets by two alternative mechanisms: through extremely tiny wormhole contacts with  $CP_2$  size and via join along boundaries bonds connecting the boundary of the rotating spacetime sheet to the boundary regions of the larger spacetime sheets.
- b) When the system rotates, join along boundaries bonds (in particular, gravitational flux tubes) get entangled. This relates interestingly to the orientation-entanglement relation discovered by Dirac. When one connects the corners of a cube  $D_1$  to the corresponding corners of a larger cube  $D_2$  containing  $D_1$  by elastic threads and rotates  $D_1$ , the threads get entangled. Rather remarkably, for a  $2\pi$  rotation entanglement cannot be straightened out, but can be done so for a  $4\pi$  rotation: thus also classically  $2\pi$  rotation can be non-trivial operation physically! The reason is that the entangled threads provide a geometric representation for the homotopy group  $Z_2$  of  $SO(3)$  realized by the rotations of the smaller cube. Join along boundaries bonds carrying gauge and gravitational fluxes realize this fictive system invented by Dirac quite concretely in TGD framework.
- c) One might expect that if the rotation velocity gets too high, gravitational flux tubes are not able to straighten out their entanglement and begin to split much like the magnetic flux tubes of the solar magnetic field. The splitting generates negative and positive gravitational charges at the ends of the flux tubes. The gravitational flux entering to the external world from the rotating system is not changed but the gravitational mass of the rotating system itself gets gradually lower since it is gradually transferred to the boundary of the external world spacetime sheet where it acts like a surface charge.

- d) At the extreme situation system has neither wormhole contacts nor join along boundaries contacts to the larger spacetime sheets and **has a vanishing gravitational mass (using TGD terminology, system has suffered 'topological evaporation') in accordance with the fact that closed 3-space has a vanishing gravitational mass.** The system could still have an inertial mass so that equivalence principle would not hold true. The long length scale limit of TGD indeed allows also solutions, for which Einstein's equations are not true (see the chapter "TGD and GRT" of [1]).
- e) The findings of [5] suggest that at least 30 percent of gravitational flux of the rotating magnet flows join along boundaries bonds to the larger spacetime sheets. If magnetic flux tubes serve also as gravitational flux tubes, **the splitting would generate also effective magnetic monopoles.**

By its extreme generality, this mechanism might be behind all reported loss of weight phenomena, for instance, those reported in [6,7]. In particular, in the experiment by Podkletnov the effective reduction of the gravitational field above the rotating superconductor could be due to the rotation of the mass of air above the superconductor defining a spacetime sheet and leading to the splitting of the gravitational flux tubes so that the gravitational potential is reduced. For instance, pressure gradient is not anymore balanced by gravitational force and air begins to flow upwards.

An obvious question relates to the linear friction known to be proportional to the weight of the system (the reason for which is in fact still today poorly understood!). If gravitational join along boundaries bonds are responsible for the friction, then the proportionality of the frictional force to gravitational force could be understood. **If gravitational flux tubes split when the object slides sufficiently fast, the gravitational mass of the object should be reduced.** Note however that the object put in motion along the support of a scale does not demonstrate this effect since the support receives the lost gravitational mass. What would however happen is that the nearby gravitational field generated by the object plus scale behaves anomalously, since only part of object's gravitational mass would be moving.

#### Generation of negative energy spacetime sheets in rotating magnetic systems

The very fact that spacetime is a 4-surface means that energy momentum tensor is replaced with a collection of conserved vector currents. This makes Poincare invariance exact apart from a cosmological breaking caused by the lightcone boundary, and the notions of energy and momenta are well defined unlike in General Relativity.

One important implication is that the sign of the energy depends on the time orientation of the spacetime surface and both positive energy and negative energy

spacetime sheets are possible. The following argument supports the view that negative energy spacetime sheets are indeed generated by rotating magnetic systems. TGD allows purely geometric vacuum charge densities with no elementary particles acting as charge carriers. In particular, if one 'kicks' a 3-surface containing a constant magnetic field into a rotational motion, then vacuum charge density results. This is seen by considering a simple model for the imbedding of a magnetic field  $B_z(\rho)$  as an induced gauge field in  $M^4_+ \times S^2$ , where  $S^2$  is a geodesic sphere of  $CP_2$ . In spherical coordinates  $(\cos(\Theta), \Phi)$  for  $S^2$  the electromagnetic component of  $CP_2$  spinor connection is

$$A_\Phi = \cos(\Theta) \quad (1)$$

apart from a multiplicative numerical constant. The induced electromagnetic gauge potential is

$$A_\mu = A_\Phi \partial_\mu \Phi \quad (2)$$

as a projection of the component of the spinor connection to the spacetime surface. In cylindrical coordinate  $(t, z, \rho, \phi)$  for  $M^4_+$  one has for the imbedding of magnetic field as an induced gauge field

$$\cos(\Theta) = f(\rho), \quad \Phi = n\phi, \quad B_z(\rho) = \partial_\rho A_\Phi = n \partial_\rho f \quad (3)$$

where  $n$  is integer. Note that the imbedding necessarily fails at some critical radius since  $\cos(\Theta)$  cannot be larger than one: this is nothing but topological field quantization of magnetic field to flux tubes.

When the magnetic 3-surface is 'kicked' to a rotating motion one has

$$\cos(\Theta) = f(\rho), \quad \Phi = n(\phi - \omega t), \quad (4)$$

and an electric field

$$E_t = \partial_\rho A_t = -\omega \rho B \quad (5)$$

is generated.

The condition  $E_\rho = vB = \omega \rho B$ , **which can be interpreted as the vanishing of the net Lorentz force locally**, gives rise to a vacuum charge density

$$\rho_{vac} = -\partial_\rho E_\rho = -\omega B \quad (h/2\pi c = 1). \quad (6)$$

**The sign of the vacuum charge density depends on the direction of rotation.** This means a large parity breaking effect. It is very difficult to understand how the sign of the charge density could depend on the direction of rotation if charge carriers were ordinary elementary particles. Thus this effect, observed already by Faraday, seems to be in conflict with Maxwell's theory and to support TGD.

*Note from Faraday Lab Ltd: it is one more example of the advantage of experimental science by Faraday in front of theoretical science by Maxwell.*

Charge conservation requires that the radial electric gauge flux of vacuum goes somewhere at the boundary

of the magnet spacetime sheet. The only possibility is that a new spacetime sheet is generated parallel to the magnet spacetime sheet (unless it exists already). The electric flux runs through wormhole contacts or join along boundaries bonds to this spacetime sheet and back in radial direction at the second spacetime sheet. If this spacetime sheet has negative time orientation (guaranteeing that the sign of the electric field as tensor component  $F_{0r}$  changes), it has also negative energy, and energy conservation requires that the rotating system get positive compensating energy.

### **Negative energy spacetime sheets and over unity energy production in rotating magnetic systems**

As found, rotating magnet can generate a negative energy spacetime sheet and energy conservation requires that system itself get a compensating positive energy. This alone cannot however lead to overunity energy production reported in [5] and a more refined mechanism is needed. What is essential is that the negative spacetime sheet defines a quantum system in which particle energies are negative: the roles of creation and annihilation operators are effectively changed. It happens that negative energy spacetime sheet begin to be filled with negative energy particles, presumably photons and gravitons and perhaps even charged particles. **If the rate for the generation of negative energy in this manner overcomes the rate of the ordinary dissipation, the rotating system begins to accelerate.**

a) The electrostatic energy of the negative energy spacetime sheet is of order

$$E_e \approx -\frac{1}{2} E_m \omega^2 r^2 / c^2,$$

where  $E_m$  is the ordinary magnetic energy and  $r$  the radius of the rotating magnetic system.

b) **Overunity energy production requires that the rate for the change of the rotational energy  $E_{rot} = I\omega^2/2$  is positive ( $I$  is the moment of inertia), that is  $\omega$  increases spontaneously. This rate is given by**

$E_{rot}/dt \approx dE_e/dt + P - P_d$ , where  $P_d$  denotes the power dissipated by friction losses and  $P$  denotes the rate of negative energy generation due to the filling of negative energy particle states (at least photon and graviton states) associated with the negative energy spacetime sheet.

c) Since  $E_{rot}$  and  $E_e$  are both proportional to  $\omega^2$ , one has

$$d \log(\omega^2)/dt \approx 2(P - P_d)/(E_{rot} - E_e).$$

Since  $E_e$  is negligible as compared to  $E_{rot}$ , then  $\omega$  can increase only if one has  $P \geq P_d$ . Thus for  $P = 0$  spontaneous acceleration of the system is not possible. Notices that the splitting of the gravitational join along boundaries bonds between rotating system and external World could also reduce frictional losses and facilitate the effect. The proposed mechanism might

be called 'buy now pay later (or somewhere else)' mechanism. **The negative energy could leave the system and be received by some subsystem elsewhere. Instead of sucking energy from the external world, system sends negative energy to its surroundings or to parallel negative energy spacetime sheets.** This mechanism is crucial for understanding how negative potential energy, say gravitational energy is generated (a cloud of negative energy virtual gravitons represented as spacetime sheets), and is of utmost importance in TGD inspired cosmology: without it one could not understand huge energy densities generated near the moment of big bang (see the chapter "TGD inspired cosmology" of [1]).

### **Coronal discharge and acceleration of ions in the electric field are generated by vacuum charge density**

Standard wisdom suggests that the presence of coronal discharge in the experiments by Roshchin and Godin [5] could be analogous to what happens in TV screen when electrons accelerate in electric field and loose their energy by bremsstrahlung in collision with the 'wall'. In this case the electromagnetic potential energy difference in the radial direction at the spacetime sheet not containing the magnetic field is  $\Delta E = eV = e\omega B \Delta \rho^2$ , and causes acceleration since the electric force is not cancelled by the magnetic force. Thus the coronal discharge could be seen as an evidence for the many-sheeted spacetime concept. The objection against this mechanism is that also charged particles at the negative energy spacetime sheet should reside in negative energy states. If so, the acceleration of these charges means that they emit positive energy photons so that the observed radiation could result from this kind of process rather than from a collision with the 'wall'. A temporal mirror image of the bremsstrahlung process would be in question! Electrons and other ions, if present at the negative energy spacetime sheet, accelerate in this electric field. Depending on the sign of the charge, the acceleration occurs inwards or outwards. The sign of the acceleration is predicted to depend on the direction of rotation since the sign of the electric field depends on it. The intensity of radiation allows estimating the total number of ions present at this spacetime sheet: this number should be very small.

The maximum energy  $E_{max}$  of a photon emitted as bremsstrahlung is given by the maximal electric potential energy difference and a simple estimate gives  $E_{max} \approx 3 \text{ keV}$  for  $B=0.85 \text{ Tesla}$ ,  $\omega=500 \text{ rpm}$  and  $\Delta \rho=1 \text{ m}$ . Whether the bremsstrahlung type spectrum is really there could be easily tested. The charges in ionic clouds should have different signs for clockwise and counter clockwise directions of rotation since the signs of ions at the exterior boundary (and interior boundary) are opposite.

### **Strange magnetic field structures**

In TGD framework, strange magnetic field structures observed in the experiments by Roshchin and Godin



[5] and having geometry of cylindrical shells are identifiable as topological field quanta of the magnetic field generated by the rotating magnetic system (flux quanta could also carry  $Z^0$  magnetic fields, see below). **One could understand the lowering of the temperature inside the magnetic flux structures in the following manner.** In ordinary hydrodynamics the condition:  $p + \frac{1}{2}(\rho v)^2 = p_0$ , where  $p_0$  is the pressure in the region where flow velocity vanishes, holds true by energy conservation along flow lines. In magnetohydrostatics the corresponding condition reads as

$$p + \frac{1}{2}(e^2 B^2) = p_0 = n T_0.$$

Here  $p_0$  and  $T_0$  denote the pressure and temperature outside the magnetic flux tubes and the equation  $p = nT$  for ideal gas has been used.

The equation implies a lowering of the temperature as follows:

$$\Delta T/T = -\frac{1}{2} e^2 B^2 / p_0.$$

For a magnetic field strength of order 0.05 Tesla and pressure of one atmosphere ( $10^5 \text{ N/m}^2$ ) the estimate for the reduction is  $\Delta T/T \approx 10^{-2}$ , which is of the same order of magnitude as the reported reduction of temperature  $\Delta T/T \approx 6\text{K}/295 \text{ K} = 0.02$ .

#### **The classical $Z^0$ fields as TGD counterpart for torsion fields**

TGD predicts the existence of classical  $Z^0$  fields ( $Z^0$  bosons are ultraheavy companions of photons responsible for neutral current weak interactions; see the chapter "Anomalies explainable by TGD based spacetime concept" of [2]). The  $Z^0$  charge of the atomic nucleus is essentially its neutron number since proton's  $Z^0$  charge is very small. Neutrinos screen the  $Z^0$  charge of the condensed matter above length scales of neutrino Compton length that is of about cell size (see the chapter "TGD and condensed matter physics" of [2]). Under certain circumstances also  $Z^0$  electric fields can cause detectable effects. For instance, the TGD based explanations of the tritium beta decay anomaly [10], the acceleration anomaly of spaceships in outer space [11] discovered in NASA, and the anomalous variation of the radioactive decay rates [12] involve the interaction of small sized objects with large  $Z^0$  charges with astrophysical  $Z^0$  electric fields.

$Z^0$  neutrality does not exclude the possibility of  $Z^0$  magnetic fields: what is required that nuclei and neutrinos rotate with slightly different velocities. **Thus rotating macroscopic objects could generate  $Z^0$  magnetic fields and the claimed properties of the torsion fields [8], torsion are very much like those of  $Z^0$  magnetic fields.** In particular, also classical  $Z^0$  field has parity breaking axial coupling to elementary particles, and large parity breaking effects are predicted (chiral selection in living matter has explanation along these lines). The generation of classical  $Z^0$  magnetic field might be involved with the large parity breaking

observed in the experiments by Roshchin and Godin [5] (the critical rotation velocities were different for clockwise and counter clockwise rotations). Note however that also the sign of vacuum charge density involves parity breaking effect. It is also possible that flux structures carry combination of magnetic and  $Z^0$  magnetic fields and the strange shell like magnetic field structures could be accompanied also by  $Z^0$  magnetic fields.

To sum up, it seems that the experimental findings by Roshchin and Godin could be satisfactorily understood at the phenomenological level in TGD framework although quantitative modelling is not possible at this stage.

#### **Acknowledgements**

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But hopefully it is changing a little bit. At least now we cite chapter and verse when these things were done, and what they are, and the young grad students and post docs can go check the papers and make up their own minds.

That is the real hope of the future: that we get a generation of young fellows, with excellent skills, who now know where all the skeletons got hidden in the closet, and understand that the electrical engineering model arbitrarily assumes an inert vacuum environment (falsified for more than a half century in particle physics) and a local flat spacetime (falsified for nearly a century by general relativity).

Once they know that past history, and go read into what broken symmetry of opposite charges means for a dipole and for all dipolar EM circuits, they will set to and change that more than a century of error. In that case,

we shall have numerous solutions to the energy crisis rather quickly, popping up all over.

Good thing. It will certainly displace some great energy barons, but it will also free the populace. One can extract all the EM energy from the vacuum one wishes, anywhere, anytime, with ridiculous ease. One can produce that "electrical wind of energy" at will, by making a simple dipole and then letting it alone. The only energy problem is in how to then intercept some of that energy flow and "catch" it in a circuit, discharge it in a load to power it, and not use half the "caught" energy to kill that dipole that is gushing out the extracted EM energy from the vacuum.

Very best wishes,

Tom Bearden

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## The Transdimensional's Lifters Experiment

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In June 2001, Transdimensional Technologies has presented the *Lifter1* and *Lifter2* devices. The *Lifter1* device was built with three capacitors joined so as to form a triangle assembly and the *Lifter2* is three time heavier and three time bigger than the *Lifter1*. These devices are able to lift their own weight and they are a "modern version" of the Townsend Brown Electrokinetic Apparatus. The Lifters are using the Biefeld-Brown Effect to generate the main thrust to self levitate. I have already built some similar devices in April 1999, with "EHD Flying Saucer v1.0 ".

In Townsend Brown Electrokinetic Apparatus described in the US Patent N°2949550 filed on Aug 16, 1960 and titled "Elektrokinetic Apparatus" you will find the full description of the main principle used in Lifter devices:

*It is therefore an object of my invention to provide an apparatus for converting the energy of an electrical*

*potential directly into mechanical force suitable for causing relative motion between the system and surrounding medium.*

*It is another object of this invention to provide a new apparatus for converting electrostatic energy directly into kinetic energy.*

*It is another object of this invention to provide a vehicle propelled by electrostatic energy without the use of moving parts.*

*Another goal of my invention is to provide a self- propelled vehicle without moving parts. It is a feature of my invention to provide an apparatus for producing relative motion between structure and surrounding medium. This apparatus includes a pair of electrodes of appropriate form held in fixed spaced relation to each other and immersed in a dielectric medium and oppositely charged.*

*It is another feature of my invention to provide apparatus which includes a body defining one electrode, another separate electrode supported in fixed spaced relation by said body, and a source of high electrical potential connected between the body and the separate electrode.*

( Extract from US Patent N°2949550 filed on Aug 16, 1960 titled "Elektrokinetic Apparatus" )

The Lifter v4.0 specificationsThe Lifter v4.0 uses 36 asymmetrical T.T. Brown capacitors joined (called cells) so as to form a hexagonal assembly. Each asymmetrical capacitor is built with one electrode made with a thin corona wire placed at 30 mm from the main rectangular electrode constructed "ala" Townsend Brown.

- Weight : 32 g
- Size: 820x 700 mm and 40 mm high made with a thin aluminium sheet.
- Mounting legs: 30-mm length.
- Main frame: balsa wood 15/10 mm thick and 2 mm wide. The construction of the frame is lighter than the previous versions (half of the lower balsa frame has been removed).
- Power required to compensate the weight : 81.4 Watts ( 40.5 KV at 2.01 mA )
- Power required for a stable flight above the ground : 132.9 Watts ( 44 KV at 3.02 mA )

Today, I have replicated successfully the Transdimensional Power<sup>3</sup> Lifter1 and Lifter2 and developed some new enhanced and bigger versions. The Lifter V3.0 is a bigger version of the Lifter2 presented by Transdimensional Technologies in June 2001. The Lifter v3.0 uses nine asymmetrical T.T. Brown capacitors joined (called cells) so as to form a triangle assembly. It is 2.4 time heavier than the *Lifter2* and 7 time heavier than the Lifter1. The Lifter V4.0 is a bigger version of the Lifter v3.0. It uses 36 asymmetrical T.T. Brown capacitors joined (called cells) so as to form a hexagonal assembly and it is 2 time heavier than the Lifter v3.0.

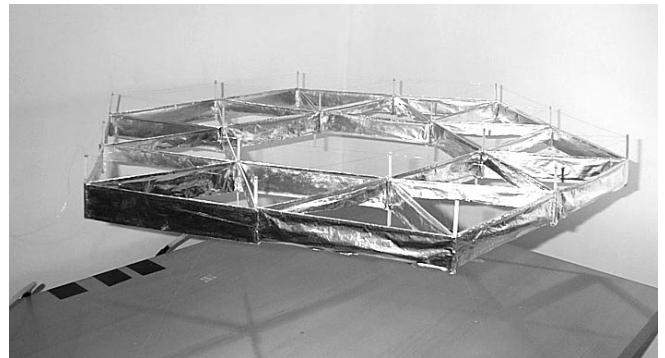
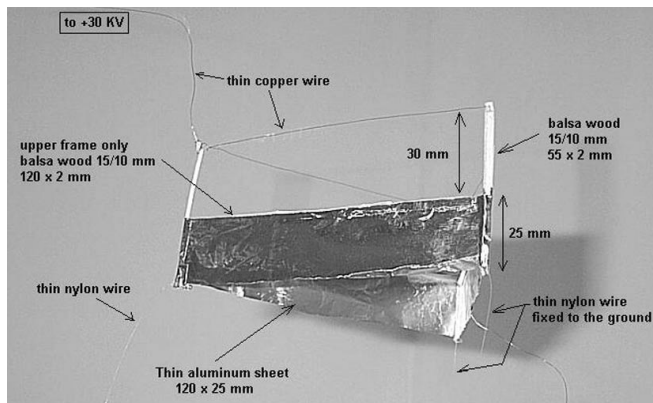
**Lifter v4.0 Test Results :** The Lifter v4.0 is the biggest one that I have built today. Its size in the lab is very impressive (820 x700 mm). The Lifter v4.0 is able to accelerate upwards very quickly and silently. The Lifter v4.0 has a weight of 32 g and it is very stable during the hovering.

**Lifters comparison chart:**

	Weight	Payload	Power to compensate the weight	Power for a stable flight
Lifter 1	2.3 g	1 g	18 Watts ( 40 KV at 450 uA )	23.9 Watts ( 41.9 KV at 570 uA )
Lifter 2	6.6 g	3 g	21.9 Watts ( 38.5KV at 570 uA )	48.5 Watts ( 43.35 KV at 1.12mA )
Lifter 3	16 g	4 g	45.4 Watts ( 18.45KV at 2.46 mA )	69.6 Watts ( 27.5 KV at 2.53 mA )
Lifter 4	32 g	-	81.4 Watts ( 40.5 KV at 2.01 mA )	132.9 Watts ( 44 KV at 3.02 mA )

For a tabletop demonstration you may use the basic lifter. The Basic Lifter is maintained on the ground base with 3 thin nylon threads to avoid that it escapes to the ceiling...

**Basic Lifter photo**



The Basic Lifter remains very stable above the ground while the power supply is energised. A 330 Kohms/10 Watts resistor is connected in series with the HV Output to limit the current flow. This High Voltage power supply is able to generate up to 25-30kV DC Output from 12-24v DC input. With a fully adjustable DC input power supply (0-24V/4A), it is possible to adjust the HV output between 5 to 30kV. This HV power supply uses a common flyback driver circuit with two 2N3055-power transistors as a push-pull oscillator. A common flyback transformer from an old TV/monitor can be used, the transformer HV output is connected to a 30kv Voltage tripler which commonly used in all colour TV monitors. In the Basic Lifter experiment the DC Input of the HV Power supply is 15 V at 2.3 A.

**Some Researches Projects planned:** Today, after a successful and impressive test of the Lifter v4.0, I have planned to build a device which will be able to flight by itself for few seconds with its own power on board. This will be a very good demonstrator for going further...

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# On the Great Constant 137.036

Dr. Anatoli V. Rykov

In the first half of XX century English astrophysicist Eddington stated that if physics find out a sense of a fine structure constant **137.036**, then many secrets of Nature would be discovered. Some incomplete examples of the manifestation of this constant are given below. As Ether does not admitted by traditional physics, these examples can cause criticism from its side.

## Electromagnetic radiation in Ether

The portion of electromagnetic radiation named photon of frequency  $\nu$ , deforms structure of Ether. Being in Ether with the size  $r_e$  between its elements, photon makes deformation  $\Delta r$ . Thus the energy of deformation will be  $e_o E \Delta r_e$ , where  $e_o$  is the electron or positron charge,  $E$  is the intensity of an electrical field. Energy of photon is equal to energy of deformation, where  $h$  is the Plank constant:

$$h\nu = e_o E \Delta r_e \quad (1)$$

This deformation depends on time. Photon is an electromagnetic phenomenon with the amplitude  $r \sin(2\pi\nu t)$ :

$$dr = d[r_e \sin(2\pi\nu t)] = 2\pi\nu r_e dt \cos(2\pi\nu t) \quad (2)$$

Let's determine the intensity of an electrical field, where  $N$  is a certain factor of proportionality:

$$E = N\xi \frac{e_o}{r_e^2} \quad (3)$$

Let's substitute the received ratio (amplitude from (2) and intensity from (3) to (1):

$$h = 2\pi N e \xi \frac{1}{r_e / dt} \quad (4)$$

It is possible to assume that  $r_e / dt = c = \sqrt{\nu \xi}$  is the speed of light.

Let us note that this assumption seems to be natural, but not obvious. Let's determine the unknown number:

$$N = \frac{h}{2\pi e_o^2 r_q} = 137,036 = \alpha^{-1} \quad (5)$$

Where  $r_q = \sqrt{\xi / \nu}$ ,

$$\nu = \frac{1}{\mu} = 1,0000000028 \cdot 10^7 [a^2 kg^{-1} M^{-1} s^2]$$

is a magnetic constant of vacuum, which is equal to reversed magnetic permeability,

$$\xi = \frac{1}{\varepsilon} = 8,98755179 \cdot 10^9 [a^{-2} M^3 kg s^{-4}]$$

is an electrical constant of vacuum equal to reversed dielectric permittivity. Thus, interaction of electromagnetic radiation (photon) with Ether is related with the number **137.036**. It, probably, characterizes some cluster of ether, which is related to photon. Let's receive the known formula for a Plank constant from (5):

$$h = 2\pi e_o^2 r_q \alpha^{-1} \quad (6)$$

All components, included in the Plank constant, completely concern to structure of Ether. The conclusion is the following: the so-called «ultra-violet catastrophe», which has put under doubt a correctness of classical physics, is a completely far-fetched problem from the point of view of existence of Ether. It is simply solved by ability of ether to perceive and to transfer radiation only as quantum.

We should construct elements of structure of vacuum on the well-known experimental fact. There is an equation of photon energy for the frequency « of red border »  $h\nu_{rb}$  and energy of pair

$$w = \xi \frac{e_o^2}{r} = 2\pi \alpha^{-1} e_o^2 r_q \nu_{rb} = 1,6493 \cdot 10^{-13} \quad (7)$$

From (7) we can find the size of a structural element:

$$r_e = \frac{\alpha^{-1} \xi}{2\pi r_q \nu_{rb}} = 1,398688 \cdot 10^{-15} \quad (8)$$

Therefore, we have the distance between virtual electron and positron charges forming a bond charge or dipole of Ether.

The «red» border of its «destruction» at the photoelectric effect is determined from:

$$\Delta r_{rb} = \frac{h\nu_{rb} r^2 \alpha}{e_o^2 \xi} = 1,020672 \cdot 10^{-17} \quad (9)$$

The dipole deformation is less than the given value and it should have an electroelastic property. When the value of deformation increases, it leads to destruction of dipole and a pair of free electron and positron will appear. A remarkable consequence from the formula (9) is:

$$\Delta r_{rb} = 1,020672 \cdot 10^{-17} = r_e / 137.036 \quad (10)$$

Again we have received a constant **137.036**. Now it is related with deformation properbonds of Ether structure.

Nature gives us some help: a certain hierarchy in a structure of matter is observed during consideration of the growth of masses of fundamental particles  $2 \cdot 137.036 m_e$ ,  $2 \cdot 137.036 \cdot 7 m_e$  and  $2 \cdot 1836 m_e$ . Masses of pair of electron - positron will form masses of pions, proton, antiproton, and neutron. Number 1836.125 is a mass number of a proton. Number 1838.6 is a mass number of a neutron. It is easy to notice that a structural element is the mass  $2m_e$ . Let's multiply it on  $137.036 \cdot 2m_e = 274.0720 \cdot m_e$  and we will get a value, which is very close to the pion mass  $m_{\pi(+ -)} = 273.2 \cdot m_e$ . Such concurrence does not seem senseless. Pions represent particles formed from electron and positron. In  $\pi_0$  -pion the integer of 264.2 are masses of electron and positron. The integer determines a zero-charged pion «0», and the minus 9.872 can be accepted as a mass equivalent to energy neutral pion connection. In  $\pi_+$ ,  $\pi_-$  pions contain the odd number of electron and positron masses 273. The nature again prompts, that  $\pi_+$  pion consists of one superfluous positron, and  $\pi_-$  consists of one superfluous electron. It is clear that pions represent a single unit (indivisible quantum systems capable to virtual and real existence according to their short time of life). The lack of mass charging pions up to number 274.072 can be treated as a defect of mass of bond or energy of bond  $\Delta m_{\pi(+ -)} = 0.8720 \cdot m_e$ . It is possible to assume two variants of mass defect for pion «0»:

$\Delta m_{\pi 0} = 1.8 \cdot m_e$  or  $\Delta m_{\pi 0} = 9.872 \cdot m_e$ . These variants can be distinguished by the time of pion life «0». The greatest time of particle life, at which mass defect is maximal. As pion «0» has time of life less, than at charged pion, it is necessary to accept the first variant, i.e.  $\Delta m_{\pi 0} = 1.8 \cdot m_e$ .

It is possible to assume, that the protons and antiprotons can be formed from mesons and pions. For example, the particle with mass equal to 1836,12 electronic masses (proton) can contain 3 pairs charged pions, one positive pion and 7 neutral pions. Structure of a proton or antiproton contains charged mesons, participating in strong nuclear interactions. Superfluous mass in 1836 electronic masses makes mass defect equal to bond energy. It corresponds to the huge energy providing large stability of protons. You can see the role of number **137.036** on the given examples of a structure of matter.

The De Broglie's formula  $\lambda = \frac{h}{mV}$  is used for calculation

of a wavelength of a particle movement. It is shown above that the Plank's constant depends on parameters of Ether and the constant **137.036**. Particle, moving in Ether structure, produces transverse fluctuations with frequency  $\nu = c / \lambda$ . Thus, the given frequency or given length of a wave will be formed only with the movement of particle in Ether. Particle moves by spiral trajectory

with a step of the screw  $\lambda = \frac{h}{mV}$  and it is the reason

for the particle diffraction phenomena. The amplitude of a wave can be determined by the formula

$$A = \frac{e_0^4 137.036}{(vm)^2 \Delta r_e}. \text{ This amplitude depends not on the}$$

speed of a particle, but on structural elements of Ether (dipole charge, the number **137.036** and deformation limit), on mass of a particle and, especially, on the Ether magnetic constant. We shall receive amplitude equal to  $1,066134 \cdot 10^{-10}$  (m) for electron, for a proton it will be  $3,162334 \cdot 10^{-17}$  (m). A large difference in amplitudes is due to a square law dependence of amplitude on mass of particles. It can be checked in experiment on diffraction of electron and proton beams. The amplitude of particle's trajectory is formed in open Ether. Hence, at the presence of a nucleus of atom or other particle (changing parameters of Ether structure) the amplitude of trajectory can be different.

Ether structure and the constant 137.036 also define Compton length of the electron wave:

$$2\pi(r_e + \Delta r_e) \cdot 2 \cdot 137.036 = h / m_e c = 2.42626 \cdot 10^{-12} \text{ (m)}$$

### Generality of ether of three different levels

The interactions of electromagnetic radiation with Ether can appear on three levels, those are space, meson and

nuclear level. Length of a «red border» wave  $\lambda_{rb} = \frac{c}{\nu_{rb}}$  of a photo effect in the space Ether is an additional tool to research structure of Ether. There is a formulation

$$\frac{1}{2\pi 137.036 r} \left( \frac{c}{\nu_{rb}} \right) \equiv 1. \text{ Index } i=e,\pi,p \text{ corresponds to three Ether levels in the generalizing table of its structural elements. The "red border" frequencies are equal to } \nu_{irb} = w_i / h.$$

Table 1

$i$	$w_i = h\nu, J$	$2m_i c^2, J$	$w_i - 2m_i c^2, J$	$r_i, m$	$\Delta r_i, m$
e	$1,649459 \cdot 10^{-13}$	$1.637422 \cdot 10^{-13}$	$1,203700 \cdot 10^{-15}$	$1,398688 \cdot 10^{-15}$	$1,020672 \cdot 10^{-17}$
$\pi$	$4,487716 \cdot 10^{-11}$	$4.473438 \cdot 10^{-11}$	$1,427800 \cdot 10^{-13}$	$5,140876 \cdot 10^{-18}$	$1,635613 \cdot 10^{-20}$
p	$6,013007 \cdot 10^{-10}$	$3,010701 \cdot 10^{-10}$	$3,010701 \cdot 10^{-10}$	$3,836815 \cdot 10^{-19}$	$3,836815 \cdot 10^{-19}$

The main conclusion is: electromagnetic phenomena at all three levels of Ether are equivalent and they are determined by the number **137.036** and speed of light (dielectric and magnetic Ether constants).

**Ratio of speed of light  $2.99792458 \cdot 10^8$  to speed of the movement of electron on the first orbit of atom of hydrogen  $2.187691 \cdot 10^6$  is equal to 137.036.**

**Gravitational constant of Ether of the Universe also depends on Ether basic parameters and number 137.036:**

$$G = \xi e_o^2 \cdot 137.036 / m_{Pl}^2 = 6.6726 \times 10^{-11},$$

where Plank's mass is a denominator.

**Inertial force of the mass  $m$  and its acceleration  $a$  are also determined by parameters of Ether and the constant 137.036**

$$f = ma = 15.5\pi \cdot 137.036 \cdot b \cdot \Delta r_a,$$

where  $b = 1.155065 \cdot 10^{19} (\text{kg/s}^2)$  is **an elasticity of Ether structure**. This formula shows how it is possible to transform elastic energy of Ether to energy of substance at acceleration of mass.

*Editor's: Theory by N.A. Kozyrev considers the cause-effect relations from positions of the concept of active properties of time. In this concept the speed of the course of time is defined as a ratio of*

*distance between the cause and the effect to the period of the time delay between them. For our space it is equal to the product of the speed of light and Zommerfield's fine structure constant, i.e. the speed of the course of time is 137 times smaller than the speed of light. Let's note, that it is not the speed of motion in space, but the "rotation speed of the cause-effect connection". To my mind, there is a clear analogy between this four-dimensional rotation and the so-called torsion technologies. In his work Dr. Shipov presents the mathematics of four-dimensional rotations and firstly introduces the notion of torsion fields. Besides, Dr. Spartak M. Polyakov in his work noted the features of the internal structure of photon. On the assumption of this structure, minimal prolongation of any electromagnetic quantum is equal to the product of the wavelength and ratio between the fine structure constant and the speed of light. So, the internal structure of photon according to Polyakov reflects the features of inner structure of space, according to Kozyrev. This link between two theories had not been discussed before. The work by Rykov about fine structure constant is another theory, which can be used to create a new scientific paradigm of Ether. In my view, there is some analogy between Rykov's notion of "elasticity of Ether structure" and Kozyrev's "hardness of cause-effect connection".*

*Alexander V.Frolov*

## There are no Secrets in Inertialess Motion and Antigravitation

Dr. Anatoli Rykov

Actually the way to open this secret was shown by the article "Structure of vacuum and community of interactions" and the publication "Principles of ether theory" [1]. The main thing to be done successfully in these works was to find the structure of ether. It was formed by massless elementary charges (+) and (-), analogs of electron and positron. The basic distance or arm of dipoles formed by charges is equal to  $1,398688 \cdot 10^{-15} \text{ m}$  and a limit of electroelastic deformation was determined according to photoeffect in vacuum (ether) and it is equal to  $1,020672 \cdot 10^{-17} \text{ m}$ .

Interaction of usual substance and ether takes place through the forces of gravity and inertia, through electromagnetic tensions. Deformation of ether from acceleration of forces is given by the equation:

$$\Delta r_g = \sqrt{\frac{g}{4\pi E_\sigma S}} = 1,2703 \cdot 10^{-22} [\text{m}]$$

To make the formula shorter the value of gravity acceleration was already substituted as acceleration of Earth  $9.82 \text{ m/c}^2$ . Direction of deformation coincides with the slope of the bob to the Earth. **To decrease gravity we should only decrease the value of deformation in this direction.** We can do it by electrical or magnetic effect around the body that we want to have antigravitational properties. Classical way to affect the value of above-mentioned deformation by another body is to place another cosmic body (for example, the Moon). **In the point of libration between the Earth and the Moon there is ether with zero deformation and accordingly the forces of gravity regarding the Earth and the Moon are absent in this point. The cause of it is evident. The Moon creates deformation of ether in this point, which is equal by the value and inverse by the sign of deformation of ether from the Earth.**

What is inertia from the point of view of ether structure? It is determined by the ratio:  $f = ma = 16\pi\alpha^{-1}b \cdot \Delta r_a$ , where  $m$  is mass of the body,  $a$  is acceleration of the body,

hardness was observed at 6-8%, i.e. weakening of metal took place. For the high-carbon alloys (steel of V-8 kind, cast iron ) the increase of hardness took place at 27.0-35.0%, which is the evidence of occurred hardening.

Thus, it was stated that AR influences the atomic- crystalline state of ferricarbonic alloys, and it was proved by the change of hardness.

/Signed/

L.A.Dachno

The chief of laboratory of metal - management and plastic deformation

The characteristic of a sample of metal	Value of microhardness, kg/mm <sup>2</sup> * H%, H (relative change of microhardness)				
	Initial condition	Source AR-FeO	Source AR-Mn	Source AR-C	Source AR-Se
Steel 08J (C=0.08% of weight, annealed, sheet)	161.2±2.4	151.6±3.0 (-0,6%)	148.2±5.3 (0.8%)	164.8±5.4 (+2.0%)	151.7±4.8 (-6.0%)
Steel U-8 (C=0.8 of % of weight)	636.6	60.5±30.8 (+35.0%)		810.4±17.4 (+27.0%)	
Cast iron (C>2.5%)	361.4±9.8	521.3±68.7 (+31.0)			

## Inertial Propulsion Drives

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### Introduction

The notion “inertial propulsion system” or device, which is moved by means of inertia forces, requires an exact definition. Usually the “drive” is a wheel, track, propeller or gas flow reaction. By means of “drive” the moving device is attracted or repulsed to the support, which exists outside the device.

Inertial drive does not interact with any support outside the device, but it interacts with the body of device by means of inertia force.

So, it is more true to name the inertial drives as an “inertioid” according to inventor Tolchin, Perm city, Russia. He has been made such sort of systems for more than 30 years [1]. His book about mechanics of 1969 was the cause for critical attacks on inertioids. For example, Dr. Gulia [2] states that unidirectional motion by means of inertia forces is impossible. But other scientists [3] like Dr. Levinson L.B., for example, wrote that all calculations in techniques take into consideration real inertia forces.

So, the notion of inertioid depends on the notion of inertia. Theoretical researches have a conclusion: reality

of inertia forces follows from Newtonian mechanics, but the fictitious inertia forces are the effect of Einstein's relativity theory.

According to Newton, there are three real inertia forces: second law force, centrifugal force, Coriolis force. Let's consider the notion of space and forces.

### Space

According to modern concept, the space is a closed material medium (Ether), which expands. All bodies are connected by gravitation field and they move. Magnetic, electric, electromagnetic and gluon fields also exist in vacuum. The space does not exist without a physical vacuum, which is a material medium, like river and sea cannot exist without water. Physical vacuum consists of moving virtual particles. The geometry of the space is Euclidian.

### The Gravitation Field

The value for intensity and distance of propagation of gravitational field in space depends on the value of mass, numbers of atoms; those consist of particles (protons, neutrons, electrons). Each particle has its own gravitational field and it conforms to the fact: air atmosphere of the Earth (atoms and molecules) is kept near the planet by gravitational field. From Mendeleev's periodical table it is obvious that atom, which has more protons, neutrons, electrons, has greater mass and gravitational field. So, gravitational field of any body is a joint, total field of all neutron, proton, electron



gravitation fields, but we suppose that it is not the curved space geometry according to Einstein's relativity theory.

Gravitational fields penetrate all space of the Universe. Gravitational field of any body is motionless relatively to its surface. The Earth rotates and its gravitational field rotates also. It is the main aspect for determination of the Earth inertial system.

### Newton's Law

The first Law is a law for inertia by Galilee - Newton. Newton's formulation is: Any body keeps its rest state or even rectilinear motion before the applied forces make it to change this state [4, p.36]. Conclusions: 1. Space doesn't prevent even the rectilinear motion. 2. Space order and define the rectilinear trajectory for motion of the body since space geometry is Euclidian.

The third law. Newton's formulation: For action there is always an equal and opposite reaction, or interaction for two bodies on each other is equal and directed in opposite sides [4, p.38].

The second law. There are different modern formulations for this law. One of them: Force is the product of mass and acceleration, which force creates for this body [5]

$$F = ma$$

where **F** is force, **m** is mass, **a** is acceleration.

Yablonsky A.A. describes this law in more exact version. According to Yablonsky, "ma" is a reaction force, or inertia force according to the third law. It is a real force [6, p.10]. According to Newton, inertia force is "Inborn force" of matter, which has a property to resist acceleration; due to this force any body keeps its rest or even rectilinear motion. This force is always proportional to the mass. Inborn force can be named as inertia force. It is demonstrating itself when other force makes changes in the body state. Demonstration of this force can be considered in two versions: as a resistance and as a pressure. It is a resistance since the body tries to keep its state and it is a pressure since the body yield to the force of resisting barrier and tries to change the state of this barrier [4, p.24, 25].

So, Newton named the inborn matter force as inertia force and he divided its manifestation into resistance and pressure. Modern mechanics classifies forces to be active (those can make the work) and passive (inertia, friction, reaction...). So, in modern understanding, resistance is a passive force action and pressure is an action of active inertial force from the body to other bodies. Newton's inertial forces, both passive and active are volumetric forces since they consist of the proton, neutron, and electron inertia forces sum. Proofs of this fact are Galilee's and Newton's experiments for different masses, different material bodies drop; and also the proof is a weightlessness state of the body. Active inertia forces (according to Newton) have been using

from the ancient times: stones, arrow and bullet... These forces are great and we cannot call them fictitious. Some inventors use Newton's active inertia forces for motion of inertioid.

### Centrifugal Inertia Forces

There is a contradiction for centrifugal forces notion in mechanics: in one case it is a real force but in other case it is not a real force.

There is a formula

$$F = \frac{mv^2}{R}$$

where m is the mass of the body, v is linear velocity of the body, R is radius of the circumference. The properties of the force, which change the direction of the motion, are not taken into consideration here. For example, Dr. Gulia explains the fictitious nature of the centrifugal force: Circular motion is forcible, since the centripetal force should be applied to the body by means of a thread. In the difference to centrifugal force, this force (centripetal) is real... Centripetal acceleration, according to Dr.Gulia, is directed to the centre. Centrifugal force is directed from the centre. But the real force cannot be directed in opposition to the created acceleration. So, according to Dr. Gulia, centrifugal force is not real but fictitious [2, p.18, 19]. Academician Ishlinsky also agrees with this conclusion [2, p.4, 5].

Logically it is true, but it leads to a paradox: there is acceleration, but velocity does not change. The kinetic energy of the body must also change, since force makes the body to accelerate; but kinetic energy does not change.

There are no paradoxes in Nature. So, some notion is wrong in this case. In contradiction to Dr. Gulia's conclusion, there is Max Born's and Landau's proof of reality of the centrifugal acceleration, and the proofs of both centrifugal and centripetal forces [7, p.33, 83-86] and [8, p.64]. Einstein also recognised the reality of the centrifugal force and he introduced the notion of the centrifugal field [9].

There are many applications of real centrifugal forces: separation of particles in centrifuges, in washing machines, in pump... Centrifugal forces compensate gravitational force on the planet orbit of the satellites. Inventors can use centrifugal forces for motion of the devices.

So, what is the mistake in the notion of the even circular motion? The answer is simple: For even motion of the body along the circumference trajectory the deviation from rectilinear motion is a result of the reaction of the connection, but it is not a result of the active external force. This reaction force don't make the work and it don't produce the acceleration. So, centripetal acceleration is fictitious instead of centrifugal force. The formula  $\omega=v^2/R$  is not a description of the centripetal

acceleration, and the formula  $F=mv^2/R$  is not an expression of the Newton's second law. Let's note that Newton explained: The change of direction of the motion along circumference is produced by reaction force.

### **Coriolius Inertia Forces**

This force is created, when the body moves along the curve-line trajectory and curvature radius changes. The angular velocity is constant in this case and there are two velocity components: linear (tangent) and radial (normal) components. If body moves spirally and it approaches to the centre, then the angular velocity should increase (if there is no resistance to motion) and some deceleration is necessary to keep constant angular velocity. So, Coriolius active force of inertia is created as a reaction to this deceleration force and its vector is co-ordinated with linear velocity vector.

If the body moves spirally from the centre, so it is necessary to use some force to keep the constant angular velocity. This force is co-directed to the linear velocity vector and reaction for this force is a Coriolius passive force.

Such sort of forces is demonstrated in Nature: rivers move from the North to the South or from the South to the North undermine their left and right riversides differently. Inventors can use Coriolius active force in inertoids.

### **Fictitious Inertia Forces**

Fictitious inertia forces are used for simplification of calculation for the relative motion in the non-inertial system, i.e. in systems, which move with acceleration.

According to Yavorsky B.M. and Pinsky A.A.:

1. Inertia forces have some properties, which are different from interaction forces (elastic, electric, gravitation, and friction forces). The main differences are:

- a) Inertia force is not a result of the body's interaction but a result of accelerated motion of the system itself; so the third law of Newton is not available for inertia forces.
- b) Inertia force acts to the body in non-inertial reference frame only, there is no such sort of force in inertial system.
- c) For any bodies there are non-inertial reference frame, for which the inertia forces are external forces, so there are no closed systems here and conservation law is not available in this case.
- d) Note, that inertia force like gravitational force is proportional to body mass so in the inertia force field (like in gravitational force field) all bodies move with the same acceleration, which does not depend on the mass of the body.

2. There is no inertia force in the inertial reference frame. So, the application of inertia forces for such sort of system is a mistake. In the inertial reference frame the notion "force" is available only in Newtonian sense, and

it is a measure for interaction between bodies. In non-inertial frame of reference the inertia forces are acting by the same way like interaction forces. So, sudden deceleration of the car produces inertia force, which throws you forward, and you feel this real force like gravity force [5, p.251].

*These explanations of inertia forces properties allow us to make the following conclusions:*

The above-mentioned notion of inertia is tangled, contradictory and it does not correspond to reality in some aspects. But in the points a) b) c) the fictitious inertia properties are described. In the point 2 a real Newtonian force of inertia is described.

**The main difference between fictitious and real inertia forces is a reference frame.** Special reference frame is necessary for fictitious forces. Real forces act in inertial or non-inertial frames. All living world feel such sort of forces in the process of motion, when the velocity changes.

The statement of Yavorsky and Pinsky number 2 about the absence of inertia forces (for inertial reference frame) is wrong. In this case only fictitious inertial forces are absent. For example, motion of the piston in motionless device is the motion in inertial reference frame if co-ordinate system is considered to be related with this device. So, the changing linear velocity of this piston is a reason for inertia forces. But forces are also acting for the piston independently from our consideration of the co-ordinate system. The choice of inertial or non-inertial reference frame is necessary only for design and calculation purposes.

What is the source of "fictitious inertia force" notion? We explained the nature of fictitious centrifugal and Coriolius forces above. Now let's consider the nature of fictitious inertia forces for the case of rectilinear motion. Inertia forces are created when the velocity of motion changes. The motion is described by different ways: Newton's motion is absolute; according to Einstein it is relative. Newton's explanation of absolute and relative motion is: True absolute motion can be produced or changed only as result of force action, which is applied directly to the moving body; relative motion can be produced or changed without application of the force to this body and in this case it is enough to apply the force to other bodies. In relation with these bodies, motion of the body is determined [4, p.33].

Einstein's explanation of motion: Any motion is relative by definition. A car moves relatively to the road and the road moves relatively to the car. In the first case, reference frame is a road; in the second case the reference frame is a car. For simple description of motion there is no difference in principle, what is the reference frame for motion [9, p.196].

But in reality there is the difference. If force is applied to a car and it moves with acceleration. According to classical mechanics, the car increases its kinetic energy

as well as quantity of motion. If the car stops, this energy will be transformed by means of friction. In another case, the road, station and the entire world move with acceleration if the reference frame is a car. According to classical mechanics, the road, station, etc. have an increasing kinetic energy as well as quantity of motion from nothing. If the car stops, this energy and quantity of motion must vanish in nothing.

This is the reason for fictitious nature of inertia forces. To separate it from the real forces, Newton used the notion "absolute" for true motion and "mathematical" for relative motion. But in more general sense, the absolute motion takes place in material medium, i.e. in physical vacuum, relatively to gravitational field. Accelerated, even rectilinear motion and even motion along the circumference are the absolute motion.

Einstein considered the **true** and **mathematical** motions as one relative motion.

### **Inertial Drives Description**

***Inertial drive is a mechanism, which moves unidirectionally by means of active inertial force produced by moving inner support to the body of the device.*** Several inner supports can be used in devices of one type. The inner support creates a closed cycle of action on the body of the whole device. Unidirectional motion of the body is a result of created non-balanced pulse inertial force action in one period (cycle) of the inner support action. Solid body or liquid can be used as inner support, which moves in return-forward way, or it oscillates around the axis, or it rotates around the axis, which is connected with the body of the device.

***The Newton's, centrifugal and Coriolis inertial forces or superposition of all these forces can be used for inertial drive.***

By means of different schemes the author of this paper created many devices. Energy of motion is transmitted from electromotors or from solenoid (electromagnets) or from other electrical devices. Unbalanced inertial force impulse for most devices is created by means of partial compensation of the negative force pulse of the inner support.

The demerits of the inertoids devices created by the author are small velocity and small propulsion power, which is not sufficient to fly up and move the device in space.

***The merit of inertoids is the possibility of reactionless motion, which allows creating an accelerated motion without reactive fuel. Also devices have high efficiency factor.***

### **On Space Application of the Inertoid Drive**

Human came to space by means of the powerful reactive propulsion drive. Next step in cosmos assimilation is

interplanet spacecraft. Reactive drives are not available in this spacecraft since it uses a lot of fuel and its efficiency is very small. So, the interplanet flight needs a non-reactive type drive. Academician Korolev S.P. and Kurtchatov I.V. understood this aspect clearly and they made a requirement on government resolution of 23 June 1960 #715/296 on the new principles for reactionless propulsion [10].

There is the question: what is the pre-condition for inertial drive? Many scientists stated that accelerated motion in space is impossible without any external support since it contradicts to the law of momentum conservation. For example, Dr. Gulia, expert on inertial mechanisms of the State Inventions Department of Russia, wrote that there is no support in space, so in empty space movement is possible only by means of reactive systems [11, p.22].

Do inertial drives really cannot be used in space? To move space apparatus in vacuum with some acceleration it is necessary to increase the quantity of motion and its kinetic energy (if the velocity increases)... So, we can assume that inertial drive leads to violation of the law of momentum conservation. But this law also is not valid in the case of ordinary rocket. For example, momentum created for rocket is more than momentum of fuel and the difference depends on the design of the rocket nozzle [2, p.24] and [13, p.20]. Also, conservation of the moment is violated and cosmonaut V. Lebedev makes his body to rotate by means of inner forces in the weightlessness state [14, p.68].

So, the claim that "it is impossible to make motion by means of inner forces" is not connected with inertoids, since inertia forces are external forces. (*Editor's: these forces are external because they are produced not by the body, but by space itself, which reacts on the accelerated motion of the body*). Inertia forces are the result of change in velocity or direction of motion in physical vacuum but for physical vacuum there are no closed systems. So, inertial drive can move itself by means of active inertial forces. It is not a reactive but active type of motion. (*Editor's: it is necessary to note that this term "active motion" was introduced at first by the author in 1996. The Scientific Congress "New Ideas in Natural Science", Saint Petersburg*).

It is necessary to remove the mistakes from mechanics and to organize serious researches on inertial drives. In this case it is possible to create an inertial drive, which can be used for spacecraft propulsion. It is necessary to solve one problem to find a closed cycle of the inner support, which has the unbalanced inertia force moment.

What are the pre-conditions for it?

1. It is an application of the difference between momentum and kinetic energy of the moving inner support, that mathematically is shown as the difference between  $p = mv$  and  $W = (mv^2)/2$ . To change the momentum of some body it is necessary to act on the

body with the force  $F$  during some time  $F t = m v$ . But to pass kinetic energy it is necessary to make the work of the force  $F$  on the way of length  $l$ , i.e.  $F l = (m v^2)/2$

This difference allows creating different inertial drive cycles, taking into account the transformation of kinetic energy into other energy forms.

2. There is an inadequacy between momentum and kinetic energy due to the factor of velocity ( $v$  or  $v^2$ ), which increases if the inner support makes translational motion plus rotational motion. (*Editor's: Thus, we get a helical trajectory of motion. This type of motion is commonly used in Nature*). In this case the force is created of two components: translational and rotational

$$\frac{m v^2}{2} + \frac{I \omega^2}{2}$$

where  $I$  is the inertial moment of the body,  $\omega$  is the angular velocity. Inertial drives of several types cycles can be created by means of this principle.

3. Repulsion between two bodies (for the case of different masses) leads to the equal momentums, but different energies, which are reverse proportional to the mass value according to the law of momentum conservation:  $m_1 v_1 = m_2 v_2$

$$\text{but } \frac{m_1 v_1^2}{2} \text{ is not equal to } \frac{m_2 v_2^2}{2}$$

This property of the interaction between the bodies also can be used to create inertial drive cycles of different types.

4. Acad. E. Alexandrov made a very interesting discovery: new (after Newton) correction of theory of collision, since the momentum and kinetic energy are transmitting to the body of the device from the inner support of the inertial drive by means of collisions [15].

5. The author didn't investigate the liquid-steam closed cycles to create reactionless motion. Calculations show that in this case there is some discordance between the law of energy conservation and the law of momentum conservation. Specialists, who calculate thermal cycles (isobar, isothermal and adiabatical), usually don't take into account the law of momentum conservation. There is a wide area, which is not investigated yet in aspect of reactionless motion. There is an idea to close the single reactive process in the closed cycle without mass wasting. (*Editor's: We should note that this topic was considered in details in "Reactionless Propulsion and Active Force" by Alexander V. Frolov. At first it was reported in 1996, The Scientific Congress "New Ideas in Natural Science", Saint Petersburg. Development of this idea was started in 1994 in close collaboration with Acad. Vladimir I. Zubov*).

6. Newton's laws are presented in physics textbooks in superficial way. These laws describe the properties of material world, but its basis lies in quantum mechanics,

i.e. in the microworld but not in classical mechanics. Due to this reason all industry, transport and space techniques is created according to these laws, and nobody can refute Newton's laws.

Some enigma is hidden in the second and the third Newton's laws. A body moves with acceleration in space under the action of the force (the second law) but for any acting force there is some opposite and equal inertial force (the third law). These forces are in equilibrium and resultant force is equal to zero that means a static situation, but really the body moves with acceleration. The motion can be called dynamical motion, if forces are in equilibrium. In another case the even motion of the body along circumference is also static, since these balanced forces act to the body. But this motion is named as inertial motion, but not dynamical. This enigma is a property of space and it is hidden in the microworld.

The author made an attempt to use the difference between dynamical motion and inertial motion to create the experimental systems to demonstrate reactionless motion. It is necessary to continue this research.

7. Besides the research on inertial drives, the author made some investigations on correctness of Einstein's special relativity principle. Instead of the known Newton's experiment with a pail of water, the author made an experiment with rotating de-balances. Results showed that relativity principle is questionable, since the motionless body and the moving body in the gravitational field are in different conditions. Reliable results can be obtained in the simplest experiment for the cases of even rectilinear motion of the transport and motionless transport.

### Practical Application of Inertial Drives

Inertial drives for space apparatus can be applied both for long distance space flights and for satellites, or for the space stations. For satellites it allows to increase the period of operation on the orbit. Fuel is saved and ozone of the planet is not demolished in this case. Active drives can be used as a personal haversack propulsion drive of a spaceman and in future as a drive to correct the orbit of the space stations. Also inertial drives can be used in ground transport for North region or for desert regions since the high velocity is not required for these cases.

### Conclusion

Inertial drive is not a single way to create non-reactive space propulsion. Magnetic and electrical fields can be used for motion in space also. Earth have magnetic field, so Lorenz forces can be used to create repulsion from the Earth magnetic field even in the area of orbital space. There is a question: are Lorenz forces sufficient for practical application in this case.

Besides, it is necessary to develop R.G.Sigalov's research [16] to create **space propulsion drive by means**

## of non-linear elements of electric currents in metal conductors, which are bent at some angle.

A valuable information about antigravitational device according to Ph.D. Dokutchaev V.T., was published in 1989[17]. This device had weight less than one gram and it used electromagnetic waves to create propulsion force of about a milligram. It is not the limit for the devices of such type, and a more powerful result can be created. *(Editor's: See the above article "Design of an Engine for Free Space based on the Pondemotor Effect" by Acad. Gennady F. Ignatyev, who got a propulsion force about 60 N, i.e. equivalent to 6 kg-force).*

Space has different reaction on translational motion and rotational motion. Gyroscopes use this property. Member of Byelorussian Academy of Science, Albert I. Veinik discovered these effects during his experiments.

Prof. Kaznacheev made an analogous experiment using the rotating gyroscope and he explained weight changes as a result of the inner lifting force [18].

There are a number of proofs on possibility to create the reactionless space propulsion drive. This problem requires a serious State research program.

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## Experimental Investigations Based on the Model of Electromagnetic Solitary Waves (Solitons)

(It is published here in short version)



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Using transceiver of electromagnetic solitary waves [1] and mathematical idea on the nature of electromagnetic (EM) solitary waves (solitons) [9] there were made experimental attempts to find interaction of artificially generated EM solitary waves and natural formations, which contain the same solitary waves. To do this the experiments on influence of EM solitary waves radiation on objects, which have various nature, were made, in particular, on biological processes and biophysical

objects (processes of bioplast fission and neurostructure of brain and others), on ultrahigh frequency plasma, on the process of atomic nucleus decay as well as gravitation. In all of them **we found specifically soliton effects**, which were due to the fact that the mentioned effects and processes contained **coherent spiral structures**. These structures were stipulated by the presence of multilinked (many-sheeted) EM solitary waves.

For example, an effective influence of EM solitary waves was observed on the following biological objects. Growth of food barm in solution of honey kvass increased two times (in comparison with process in standard solution) during radiation by solitary waves of positive polarization (by electromagnetic component). It was made by two transmitting magnetic antennas (MA) shifted relatively each other at 90-degree and 90-degree phase delay. The same barm slowed their reproduction during radiation by solitary waves of negative polarization. Obviously, such effect is related with the change of spiralization threshold. Change of this threshold stimulates the excitation of electron-vibron field (it is some component of triune field of many-sheeted EM solitary wave). At that electromagnetic component of EM solitary wave field (biofield) was observed before as luminescent filaments of mitogenetic (ultraviolet) radiation for process of the cell fission.

In another experiment a single (for the time of less than 1 second) radiation by EM solitary waves on simple

# Technical Design of Antigravitational Spacecraft “Silver Cup”

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## Introduction

Kinematical schemes of known vehicles are very simple. Weight of an automobile increases frictional force and creates cohesion of wheels with the road. Due to the transmission of rotation from the engine to wheels the automobile moves along the road. The road serves as a fulcrum to the automobile.

A helicopter repulses from air by its fan baffles, it allows the helicopter to move upright. Air serves as a fulcrum to the helicopter.

Due to the convex form of airplane wings the reduced pressure appears above the wing with incoming airflow. This pressure overpowers the gravity of the airplane mass. The incoming airflow serves as a fulcrum to the airplane.

***Editor's: it is a very simplified view and it can not be considered as fully correct idea.***

A rocket flies due to reactive gas flow. Similarly it is possible to move repelling water. A combination of rocket and airplane led to the creation of jet airplane.

The power antigravitational spacecraft that I'll speak about repulses from it using the strongest force in Nature, i.e. the so-called “released force”. I especially exaggeratedly showed how simple are the kinematical schemes of movement of the known vehicles. All they are usual for us and we do not notice them and we are not surprised. But let's remember, how did the first automobiles look and how do they look now? Thus, do not be surprised that kinematical schemes of movement of my antigravitational spacecrafts are very simple too. Besides, they are not perfect, because this cause is a new one. It is a business for designers to make them perfect. But in any case my antigravitational spacecraft is a great step forward in the development of transport techniques.

## Some explanation

Do you know, if anybody ever asked himself why do material UFO apparatus being in our material world easily elude the pursuit of rockets and military aircraft, which work at the maximum power of their engines? According to UFO literature, the extraterrestrial apparatus sometimes “laughing” at the imperfection of the earth flying techniques. They can sharply increase

their speed and disappear far away, then they can return. Looking on such “maneuvers” and other “wonders” like flights at straight angles on a high speed, everyone have an impression that these objects are not material, since such a “flight” contraries to people's conceptions about motion.

As numerous eyewitnesses stated that UFO are material and some people touched them or visited these objects, then various fantastic hypotheses appear on this basis that extraterrestrial can control space and time during their flights, neutralize gravitation, etc. But is it true?

If we believe these eyewitnesses and base on the theory that extraterrestrial's apparatus are material, then according to physics we should consume power, energy to move a mass from the point A to the point B. This mass cannot move immediately from one point of space to another without any energy consumption, otherwise it will be in contradiction with the law of conservation of energy and common sense. We can ask then, what kind of engines do extraterrestrial have, which can move their apparatus with such a high speed from one point of space to another? These systems are much better in acceleration and speed of flight, than all our kinds of flying techniques.

You can say that extraterrestrial can use some fields of unknown nature to move their UFO systems. Yes, they can, but are these fields really unknown to our science? And may be it's not a problem for us to use them also. Any field unknown to science should create the force of ordered action, i.e. traction to move a mass. Sometimes a usual spring can create higher traction than any unknown field!

I'd like to underline that we should not advance any fantastic theories. If UFO systems can move with such a high speed, then they have the corresponding superpower engines. There is no another explanation in our real World. You can find and understand the principle of operation of these super-power engines. *Editor's: we have already mentioned the simplifications made by the author to present these complex scientific ideas in a popular view. So, we ask our readers to be indulgent to this style of narration.*

Also there is one more prevalent opinion that extraterrestrial learned to neutralize gravitation to make their large-tonnage systems weightless. This vague statement sounds beautiful, but when we begin to think about neutralization in a physical sense and how can we neutralize gravitation taking into account gravitational properties of atom, then we will find out that gravitation can be neutralized only by static repulsion, by charge of another sign, i.e. using opposite directed force. There is no another possibility.

*Editor's: we believe, that the author is limited by consideration of his original idea only and other ideas are not possible from his point of view. Sure, we cannot agree with him in this point.*

It means that we should spend energy anyway to neutralize attraction force of large-tonnage mass of the system. This leads to the fact that any system should overpower gravitation force, make an antigravitational action, i.e. it should be an antigravitational spacecraft.

But even this scheme to neutralize gravitation, which was described here, can be simplified and improved by means of creation of a static flight, which is also known to me. My colleague from Latvia Alexander studies this method of flight. The system (theoretically developed by Alexander) radically differs from Searl's system.

*Editors: See S. M. Godin and V. V. Roschin works on creation of Searl's generator. The change of weight was about 100 kg.*

It is simple in design and production, lighter and much more powerful than Searl's system, because it creates the difference of potentials between the body and environment. It attracts energy from environment by whole external surface of the system, then makes repolarization and repulses it like rocket does. The power of the system can be higher due to the big square of surface, which attracts energy. Alexander knows problems of heavy systems made by John Searl as well as those made by Roschin and Godin. With their design scheme they will not achieve Alexander's results. But he also has problems, for example, to get and make composite materials with necessary properties. He knows these properties, but he has no research laboratory to study them. It is a main complexity in his occupation. Without this problem he could create a small static system.

I think that the main imperfection of systems, which use only static flight for movement, will be bad maneuverability and impossibility to start immediately in the case of danger. Also the imperfection of static antigravitational spacecraft is the fact that designers of these systems are limited due to the physical principle of operation. So, they will not be able to create systems of different shapes. We should note that maneuverability of static systems is small.

I can say that static method of flight by Alexander called energoplane, had been already considered in the history of Science, but I should mention that it was not developed up to industry level. Alexander on the base of his numerous experiments got better results in his method of flight. A demonstrational prototype (cart) designed by him moved being attracted to environment only. It is a matter of "techniques" now to create a flying static system. Alexander called his static system "Electrical lens", which collects, focuses energy in itself.

These two methods of flight, force and electrostatic, are different from each other by their method of work. Static method needs environment to make its engine work and move the system. Force system does not need environment to make the engine work. It needs environment only to move the system, because it can store energy for its engine inside the system as well as

it can take it from environment by static method or using a generator.

To be unbiased, I should say that the main advantage of the static flight to the force flight lies in the fact that static flight takes energy for the movement directly from environment and there is no need to store it. It substantially decreases the weight of the system. Energy in environment is infinite. It means that static systems can fly "perpetually" that is very important during long intergalactic flights.

I see the future in combination of both methods of flight in one system.

### **Explanation**

When a gun shoots, then gases released from the case push the shell forward and mass of the gun is pushed back. If all people know about the recoil force of the gun, then only some physicists know about "released force".

Let's imagine that the mass of the gun is 1 ton and the mass of the shell is 10 kg. If we shoot from this gun and place imaginary scales on some distance from it, then the power of blow of armor-piercing shell upon this scales will be about 20 tons or more. The opposite scales will register that recoil force will be of 1 ton. Here you can see the disproportion of forces!

If we fasten an imaginary elastic line between the gun and the shell, then the released force according to resultant of forces will overpower all other forces (mass of the gun, recoil force and frictional force). From this example we can see that the shell will carry off the gun due to its movement. If we place the gun upright and shoot from it upwards, then the shell also will carry it. And such a system consists of two uncoordinated masses, the gun and the shell, which are not tied together, will fly upwards.

*Editor's: Really, it is true only if there are different momentums  $p=mv$  for the gun and the shell!*

Direction of movement as it is known takes place towards the bigger resultant force. Every inventor has its own "language of physics", because the usual one does not allow him to create. I introduced my own language and should make it understandable. As I see it, kinetic energy is a "released energy" and potential energy is a "stored force". If we consider physical phenomena only from the position of energy, we will not be able to understand the entire pattern of reality, since many physical phenomena cannot be explained only from positions of energy structure of the World. And as I see it, such position is comparable with a special case in physics. But we can explain everything from the position of force, all structure of the World on micro and macro levels. The World is very simple, and people created complexities in its explanation themselves, due to the lack of knowledge. That's why further I will adhere to my own language in physics as a simple and popular one. I think it will be a language for future physics! It is



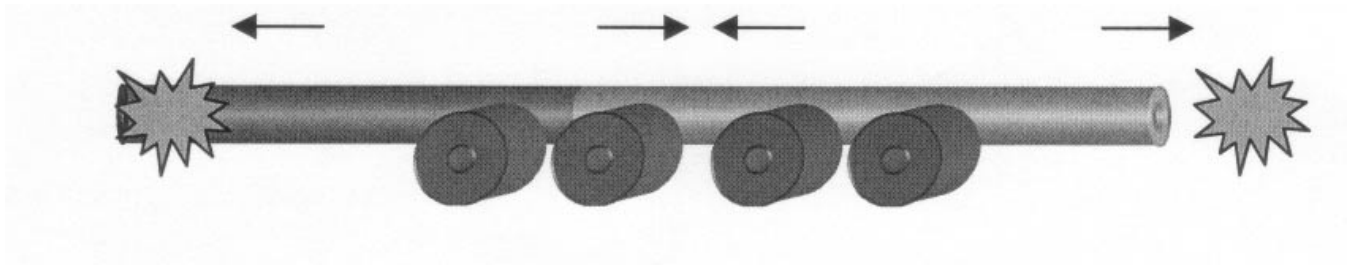
not necessary to give scientific mathematical solutions when they have no common with the physical reality.

One can say that the system considered above can fly up in such a way only for one time, and then it will drop to the Earth, because there is no fulcrum!

Surely? And who will prevent you from further "shooting" when you fly upwards? You can shoot with certain frequency, time and pulsation. And are you sure that there is no fulcrum? Being repulsing from the body, the moving mass starts acceleration, and then it

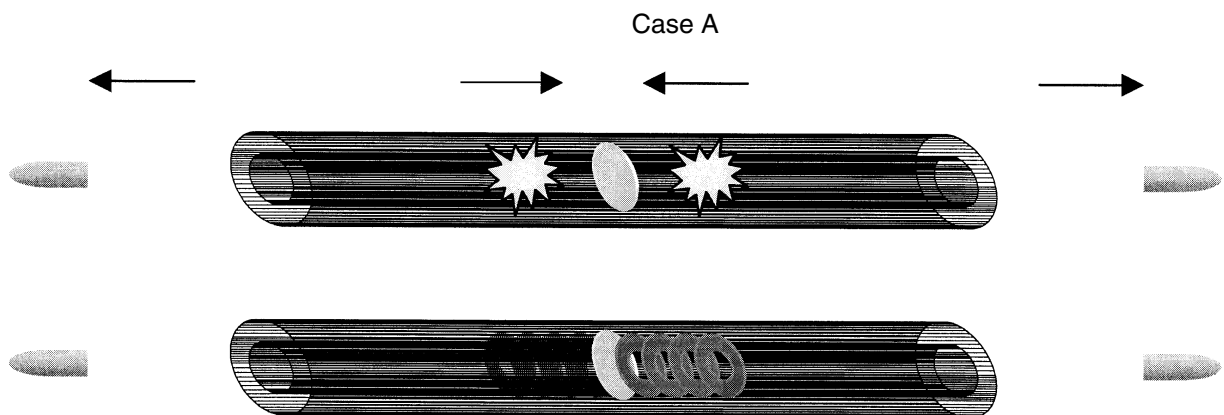
increases speed (increases its force also) and carries the body upwards. *Editor's: In this case we periodically create a fulcrum. In some works it is called "dynamical support".* Or may be it's better for you to push using diffused gases like a rocket does, than to have a stable fulcrum? We can decrease recoil force of any of masses by various technical methods, we can remove or use recoil force to fly upwards! I know how to do it...

Further let's imagine two guns placed one opposite to another as it is shown on the Fig. 1, which shoot synchronously. What will happen to them during shots?



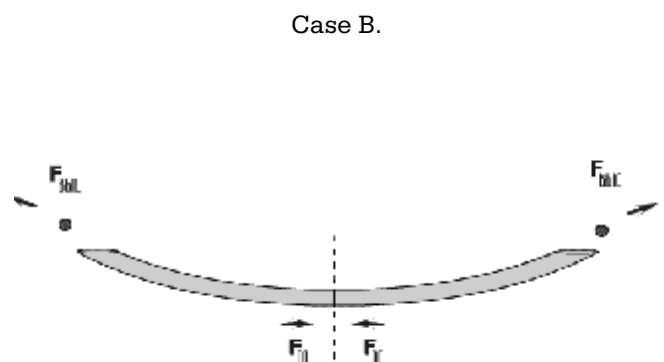
During the shot, recoil forces of two guns will be mutually compensated and there will be no recoil! This example also shows how we can eliminate recoil force by the force equal in weight, but opposite in direction of action. We can mentally remove backs of guns and during the synchronous shot released gases will push cases of shells backwards, which will mutually repulse and will be fulcrums to each other.

Then let's consider what will happen to the same metal tube bent at different angles. To compare them we will simultaneously consider what will happen inside this tube with mechanical variant of release of force using springs, which repulse the mass. We can also push the mass using pressure, pneumatics, electromagnets, etc. You know, all phenomena in nature are similar by the action of force they made.



The "released force" in both variants, explosive and mechanical, will not get the tube moving forward. The force of pressure or stored force of spring will repulse from their fulcrums and will push cannon balls forward. Here is a classic case; the action is equal to counteraction.

In this variant the "released force" will act on the tube and will call a small reactive effect. The "released force" of gases will go in one direction, and recoil force of these gases will push the tube in the opposite direction like a rocket.

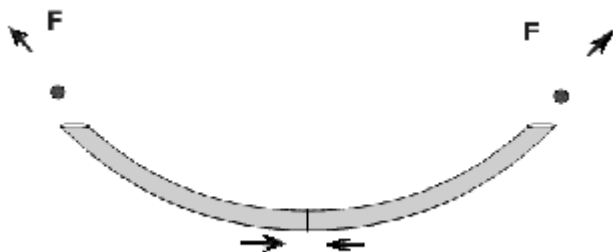


In mechanical variant with springs the reactive effect will be less, and it can be so small that it will not be able to get the tube moving forward. It takes place due to the changed direction of force to the fulcrum as a result of bent tube. In this variant two springs have their inner fulcrum, from which this springs repulse and push masses. It also assumes the inner recoil force of both springs is mutually compensated. I.e. there is no recoil force! May be, there is an outer recoil force, which is a reactive effect. But the value of reactive effect and frictional force cannot be compared with the value of "released force"!

The essence of reactive movement is based on the fact that one mass moves in one direction and another moves in the opposite direction. Every mass serves as a fulcrum to another one, from which it repulses. It cannot be any movement of the mass without the presence of another mass. The only problem is: what mass we should consider as a fulcrum. It can be the rocket or gases, but all things are relative. Usually we consider the mass, which has more force, mass and solidity to be the fulcrum. Another mass can repulse from it and then move. Not in vain we say that the rocket repulses from its gases, which serve as a fulcrum to it. We only understand that released gases serve as a fulcrum to the rocket and it flies due to recoil force repulsing from these gases. If the rocket uses released force, but not throw it away like a useless one, then it will be a "force antigravitational spacecraft"! Or it can be an automobile without a drive to its wheels that is a horizontal flight of antigravitational spacecraft.

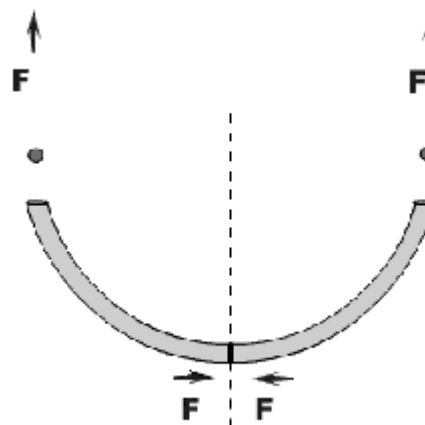
Besides some inventors make horizontal inertoids to move without a drive to wheels, by means of flywheels, disbalances and other rotary and impact mechanisms as well as they decrease the weight of vertical inertoids. Sometimes they do not understand the main aspect that is why they create movement or decrease weight. It's very simple; they all use the "released force" or some percent of it. Movement can be created due to this force as well as decrease of weight of their systems. Other forces are not able to do it. If we understand it, then we will easily get 100% of this force.

Case C



The "released force" will act on the tube in a greater extent due to the greater convolution of the tube and it will throw away the tube by its recoil force. It will call the bigger reactive effect. I have already spoken about it.

Case D



It is obvious that reactive effect is expressed in a greater extent due to the big convolution of the tube. This method of movement is used by rockets, which throw away the released mass of gas by its engine.

***The conclusion is: If we look on these examples, we will see that the smaller the force of reactive effect will be, the bigger efficiency will be obtained by the released force.***

Now if we mentally fix an elastic line between flying cannon balls and the tube, then cannon balls will push the tube. Here everything depends on the power of shot, i.e. on the stored force, which was stored by the spring. If there was enough force, then during the release of force, accelerating cannon balls will overpower the counteraction, attraction of mass and force of the tube and frictional force, thus this mental system will fly.

Cannon balls will act on the inner walls of the tube due to the changed trajectory of their movement and will call reactive effect, i.e. the recoil of the tube backwards. Much depends on the convolution of the tube, the value of power of reactive effect also depends on it. But this value of power cannot be comparable with the force of release.

*Editors: Here the author writes about another method, which is described by the formula  $F=ma$  for nonlinear motion. In my opinion, exactly this method will be more perspective for future spacecrafts.*

Further we will keep improving this tube and will start the immediate designing of the force antigravitational spacecraft.

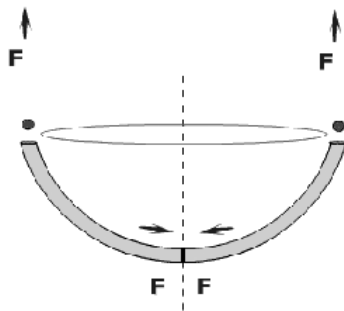
#### **Model of Antigravitational spacecraft "Silver Cup"**

The flying cannon balls can carry off the tube and it is a fact of a flight! Then we can place several pairs of such tubes and join them crosswise. We can extend them with some engine and periodically shoot with certain frequency. And such design will also fly away due to its bigger power. The main problem is that this unusual

engine should be able to store the power for a new push in the moment when it flies upright upwards.

*Editor's: this is the weakest aspect of the author's theory, which does not consider the return move of the "ball" to the initial point.*

Let's keep on improving the system. We can join the balls-masses flying upwards between each other during the synchronous shot. Then we can put some covering on these connections and make some kind of a round floor. But now it is only a "raw" mechanical variant, which is difficult to make in techniques. It's a draft for kinematical structure of a system of new generation. We can do it simpler and much more powerful.

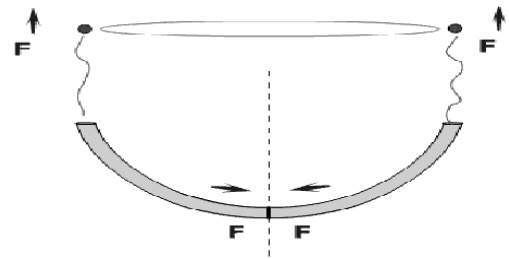
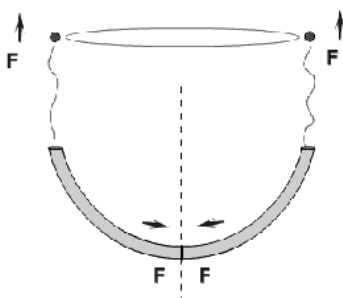


### Technical structure of the antigravitational spacecraft "Silver Cup"

If we consider the upper figure, we will see that the system consists of two separate parts, masses, which do not have a rigid connection. They are connected by springs, shock absorbers, spades and similar things placed along the circumference of the system.

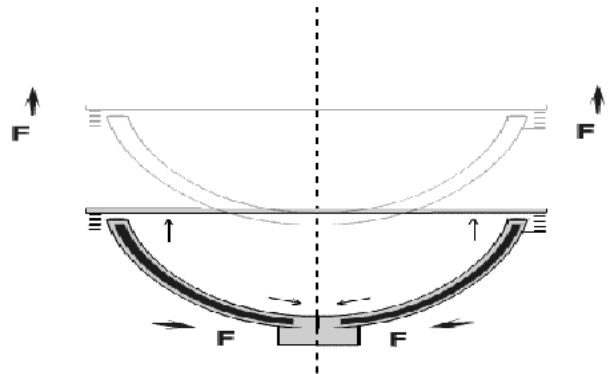
As I wrote above, the engine can be different (explosive, pneumatic, electrical, etc.). During the force release, for example, by explosive engine, the mass 2 will repulse from the inner fulcrum, i.e. from the mass 1. It will fly away pushed by explosive force like a shell (1500 m/sec). Since the mass 2 is tied with the mass 1 by the loose coupling, the mass 2 will involve the mass 1 to the flight. The main problem is that the force of upward movement of the mass 2 should overpower attractive force of the mass 1. I.e. the value of released force or explosive force should be always higher than the total weight of all system. Only in this case the flight can take place.

Many will depend on the convolution of tubes (!) and on the length of barrels, in which the shells-pistons are



placed. These shells also need time for acceleration, to pick up force and overpower the reverse action of another mass. The role of shock absorbers is to carry the second mass and to cushion the power of impact.

In the explosive variant of engine (in contrast to other variants) there is a problem, what to do with waste gases. We can entrain them in the work of engine converting them to another aggregate state or to throw them away like a rocket does through some exhaust valve working in the same clock cycle with the engine.



But I should advise to all: Let's follow the way of released force created inside the system, but not the collision way, then the flight will be silent and noiseless. The mass should carry another mass, but not strike mass against mass. During the long flight by collision method no metal can stand it for a long time. Horizontal flight in this model can be made in such a way: It will be enough to place the same bent tubes under the floor. The other things are easy to find. Please, note that the antigravitational spacecraft is empty inside. And every body that enters it can ask a question: Where is the engine? Since all are accustomed to the traditional position of engine. The engine of the given model of force antigravitational spacecraft is situated under the floor, and the lower part of the body.

### Conclusion

Many people can ask a question, why I wrote this paper? The first reason is the unbelief of people that it is possible to create an antigravitational spacecraft like aliens have. The second reason is that I have been working all this years during whole days for you and without any salary, only for humankind evolution. Thirdly, taking into account the importance of this discovery for Humankind, I'd like people to fly to stars in the near future. I want to organize a foundation to develop this technology.

**solenoidal, herewith it is forgotten, that poles of the magnet can be oriented not only along the direction of motion, but across also.**

From the electrodynamics textbook: "The vortex electric field differs from electrostatic field that it is not related with any electric charges and its lines of intensity are closed lines."

**From theory and from experiments it follows, that under transverse motion of magnet the lines of disturbance of vortex electric field can be unclosed and, accordingly, the flow of induction through the closed surface is not a zero. Then there is a direct discrepancy to facts in modern electrodynamics.** It is strange, but for the whole history of researches in magnetism the transverse magnet's motion was not considered. It leads to revising of electrodynamics' postulates, which plays such role in electrodynamics, as the Newton's laws plays in classical mechanics. The postulates, giving invalid belief about field processes, accordingly, do not allow to make some correct calculations. Fallaciousness of these postulates was one of the reasons, on which the electrodynamics could not to consider and to calculate the discrete electromagnetic waves (photons), where the magnetic field also is the transverse field (the field construction and calculation of photons are represented on the page <http://www.comail.ru/~alemanov>). **That is to say, not only particles has the charges, but areas of disturbance of field (without particles) are the charges also,** where the flow of electric induction through the closed surface is not a zero. Thereby, the vortex electric fields can be not only as closed flows of induction, but as well as inducted electric charges, accordingly, the laws for electric charges are valid for induced electric charges also. For instance, in the law of conservation of charge: if somewhere the area of disturbance with positive sign appears, that negative area appears also.

From the electrodynamics textbook: "The vortex electric field is generated by the variable magnetic field. Its force

lines are always closed, like force lines of magnetic field."

But before this fundamental postulate, confirming, that force lines of vortex electric field are always closed, it was necessary to consider all variants of change for the magnetic field, including the variant of the transverse motion of the magnet. That is to say, the consideration of physical processes could not be unilateral. Faraday considered the longitudinal motion of magnet and discovered the electromagnetic induction, but the transverse motion of magnet that have the principle importance for understanding of field processes in electrodynamics was not considered. Thereby, the longitudinal motion of magnet brings to arising a vortex electric field with closed force lines, but transverse motion of magnet brings to arising a vortex electric field, where the lines of forces are not closed. In this case it lead to induced electric charges. It is necessary to notice, that this is first mistake, detected in electrodynamics postulates for all time of existence of electrodynamics.

From the electrodynamics textbooks: "...Gauss' theorem is valid not only for electrostatics, but also for electrodynamics, which using a variable in time electromagnetic fields. We are not sure if this hypothesis is valid or it is not valid... Only the experiment can give the answer on this question. The whole collection of experimental facts speaks in favor of this hypothesis." But, unfortunately, the experiment with transverse motion of magnet was not considered seriously in this textbook.

*(Editor's note: Well-known Searl's experiments and Godin & Roshchin's experiments are based on such transverse motion of magnets (rollers). In Alemanov's article it was demonstrated that in this case the experiment should lead to induced electric charges. Really it was detected in experiments. Hence this missed aspect of electrodynamics is very important for development of the new energy technologies.)*

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## Gravito-Inert Mass

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Nature of mass is one of the important problems of modern physics. It is accepted to consider that the mass of elementary particle is determined by fields, which are connected with it (electromagnetic, nuclear and others). However, we didn't create any quantitative theory of mass. There is no theory to explain why masses of elementary particles form a discrete spectrum of values and to allow determining this spectrum.

Mass ( $m$ ) is a physical value, one of characteristics of matter, which defines its inert and gravitational properties. Accordingly, we distinguish inert mass ( $m_i$ ) and gravitational mass ( $m_g$ ).

Inert mass ( $m_i$ ) characterizes dynamical properties of a body, its property to accelerate under the action of the force ( $\vec{F}_i$ ) and according to the second Newton's law is considered to be constant coefficient of proportionality for the given body between  $\vec{F}$  and acceleration  $\vec{a}$ .

$$\vec{F}_i = m_i \vec{a} \quad (1)$$

Gravitational mass ( $m_g$ ) is a source of gravity field. Every body creates its gravity field, which is

proportional to the mass of the body. This field initiates an attraction of any other body to the given one with a force determined by Newton's law of gravity:

$$F_H = \sigma_H \frac{Mm_g}{r^2} \quad (2)$$

where  $r$  is the distance between bodies,  $\sigma_H$  the universal gravitational constant,  $M$  and  $m_g$  are the masses of attracting bodies.

In principle, it follows from nothing that the mass ( $m_g$ ), which creates gravity field, defines inertia of the same body ( $m_i$ ). However, the experiment made before the creation of relativity theory showed that inert and gravitational masses are equal to each other:

$$m_i = m_g \quad (3)$$

This law was considered to be fundamental law of nature called "the principle of mass equivalence" and was a basis for general theory of relativity (GTR) by A. Einstein.

According to general physical theory of a universal field (GPTUF) by Kadyrov [1] the mass usually observed ( $m_{obs}$ ) consists of the mass immovable regarding to the selected inert frame (IF) of particle ( $m$ ) and mass, which depends on rate of movement of particle ( $m_i$ ):

$$m_{obs} = m + m_i \quad (4)$$

Kadyrov called the mass  $m_i$  «inert mass», but it is not the mass  $m_i$  in (1), which is called in the same way. That's why to prevent the mishmash with  $m_i$  in (4) further we will call "gravito-inert mass" and will indicate it as  $m_{gi}$  that will be a correct reflection of physical sense of this mass.

Mass  $m$  in (4) expresses the same mass as in (2), and then we will rewrite the formula (4) as

$$m_{obs} = m_g + m_{gi} \quad (5)$$

where 
$$m_{gi} = m_g \cdot \frac{v^2}{c^2} \quad (6)$$

Developing these Kadyrov's laws we will show the change of mass  $m_{obs}$  with the change of speed of particle. Experiments made after the creation of GTR showed the dependence of acceleration of gravity on the chemical composition of bodies. The body, which weight is more, falls to the Earth slower then the body of smaller weight, since there are more protons and neutrons in atoms of heavy bodies. These protons and neutrons antigravitate with protons and neutrons of the Earth. According to Kadyrov a mutual repulsion appears between similar particles (i.e. antigravitation) and attraction appears between any two dissimilar particles. Such interaction takes place independently,

whether a particle has electrical charge or not. Every elementary particle has gravitational charge, which is proportional to its mass ( $m$ ) according to Kadyrov's formula

$$q = \pm \sqrt{\sigma_H} \cdot m \quad (7)$$

where  $q$  is a gravitational charge of the particle.

In result we get that gravity acceleration depends on the speed of bodies according to Kadyrov's formula

$$g = g_H \left(1 + \frac{v^2}{c^2}\right) \quad (8)$$

where  $g_H$  is determined from (2) according to the following formula:

$$g_H = \frac{\sigma_H M}{r^2} \quad (9)$$

and we will call it "Newtonian gravity acceleration".

***As a result the principle of equivalence is not true and the foundation of GTR is broken.***

Let's rewrite (2) taking into account (9) as

$$F_H = m_g \cdot g_H \quad (10)$$

The mass  $m_i$  in (1) is the mass  $m_{obs}$  in (5), which is determined taking into account (6) as follows:

$$m_{obs} = m_g \cdot \left(1 + \frac{v^2}{c^2}\right) \quad (11)$$

Dependence of  $m_{obs}(v)$  is presented on the Fig. 1 according to the Table 1:

Table 1

$\frac{m_{obs}}{m_g}$	$\frac{v}{c}$	$\frac{v^2}{c^2}$	$\frac{F_i}{F_H}$
1	0	0	$a_i/g_H$
1,04	0,2	0,04	$1,04 a_i/g_H$
1,16	0,4	0,16	$1,16 a_i/g_H$
1,36	0,6	0,36	$1,36 a_i/g_H$
1,64	0,8	0,64	$1,64 a_i/g_H$
2,0	1,0	1,0	$2 a_i/g_H$

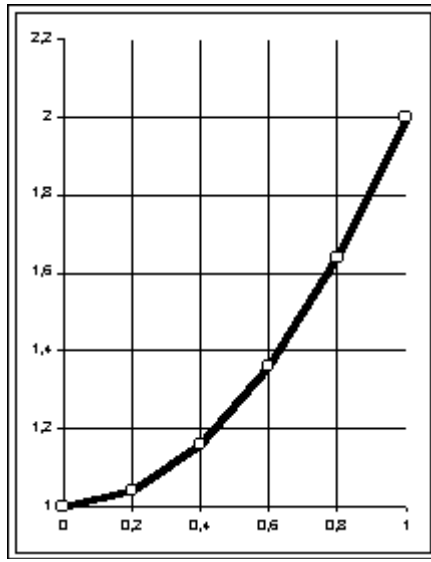


Fig. 1 Dependence of mass on speed

**Note:**  $\frac{m_{obs}}{m_g}$  is laid off by OY axis and  $\frac{v}{c}$  is laid off by OX axis.

The observed mass ( $m_{obs}$ ) grows with the growth of speed of the particle until it will be double to its initial mass, which corresponds to rest mass state ( $m_g$ ). With achieving of top speed ( $v=c$ ) the particle gives birth to antiparticle. Antiparticle has the same mass as particle.

According to GPTUF by Kadyrov [1,2,3], the ravitational charge (7) does not differ from electrical charge on the boundary of quantum volume of the particle, i.e.

$$\pm q = \pm e = \pm \sqrt{\sigma_H} \cdot m_{obs}$$

and if we will take into account (11), then we will get

$$\pm e = \pm e_0 \mp \Delta e \quad (12)$$

and with  $v=c$ , then

$$\pm e = \pm 2e_0 \quad (13)$$

where  $e_0$  is the charge of particle in immovable state,

$$\Delta e = e_0 \cdot \frac{v^2}{c^2}, \quad e_0 = \sqrt{\sigma_H} \cdot m_g$$

If we take into account (11), then the force  $F_i$  will be equal to:

$$F_i = m_g \left(1 + \frac{v^2}{c^2}\right) a \quad (14)$$

or 
$$F_i = m_g a + m_{gi} a \quad (15)$$

If we will take a ratio of (14) to (10), then we will get that  $F_i \neq F_H$ , namely

$$\frac{F_i}{F_H} = \frac{a}{g_H} \cdot \left(1 + \frac{v^2}{c^2}\right) \quad (16)$$

this implies with  $v=0$

$$\frac{F_{i1}}{F_H} = \frac{a_1}{g_H} \quad (17)$$

at the same time from (11)  $m_{obs} = m_g$ , and with  $v=c$

$$\frac{F_{i2}}{F_H} = \frac{2a_1}{g_H} \quad (18)$$

in this case from (11)  $m_{obs} = 2m_g$  (19)

**According to (19) when speed of the particle is equal to the speed  $c$ , a new identical particle is formed from gravito-inertial field of the particle.**

This particle has a spin opposite to the moving particle. Appearance of electron-positron pair is possible as a result of accelerated motion of electron. In general case the mass  $m_{obs}$  of the particle increases according to (11), i.e. the more the speed of the particle, the rapidly  $m_{gi}$  increases.

According to (17) and (18) with  $v=c$  the force  $F_{i2}$  will be double in its value, and the force equal to  $F_{i1}$  will act on every particle. It means that two particles will fall back to the Earth.

Let's allow that electron ( $e$ ) with the mass  $m_e$  accelerates from the Earth athwart to its surface. Its mass increases due to its gravito-inert mass, which will cover and compress the initial mass. Gravito-inert mass can be constantly emitted as photons. This fact explains the emanation by Vavilov-Cherenkov during the movement of charged particles. While reaching of  $v=c$ , the antiparticle of electron is born (positron) and they fall back to the Earth. Possibly, it explains the avalanche of electron-positron pairs, which regard to the secondary space beams. With the acceleration of proton up to  $v=c$  an antiproton should appear, and with acceleration of neutron an antineutron should appear. **Thus, no particle can fly out of our Universal, i.e. it is a black hole.** An antiparticle appears from the field and when it meets with a correspondent particle, they turn to the field. This field is unified, it is a gravitational field, and electromagnetic and nuclear fields are various manifestations of it.

According to Kadyrov [1,2,3], particles (electron, proton, and photon) are self-rotating clots of gravitational field, they have a dense nucleus in the center, and layers move around this nucleus with de Broglie's frequency. With

this movement their masses increase according to (11). This increase takes place because the mass of the field of particle, which is called "gravito-inert mass", increases. With a top speed ( $v=c$ ) an antiparticle appears from it. But antiparticle is the same formation as a common particle, but its spins are opposite to spines of common particles. Gravito-inert mass is a mass of magnetic field of particle. Kinetic energy of

magnetic field is equal to  $m_{gi} \frac{v^2}{2}$  and when it becomes

equal to  $m_g c^2$ , then a new antiparticle will form from this magnetic field, i.e. with energy of  $m_{gi} v^2 = 2m_g c^2$ .

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# On the Eve of the Sixth Revolution in Physics

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## Condition of modern theoretical physics and the ways of its development

### **Methodological crisis in modern theoretical physics.**

Modern physics achieved outstanding results in the field of cognition of laws of nature and in many applied fields. The twentieth century is characterized with such great achievements as splitting of nucleus and creation of atomic energy on this base, creation of quantum generators, discovery of astronomic objects with unexpected properties, research of properties of "elementary particles" of the matter and many others. Absolutely new directions of natural science appeared, which not only solved many theoretical problems, but also put them to serve the all mankind.

However, in spite of this, it becomes more evident, that in some fundamental fields of natural science, first of all in theoretical physics, some contradictions appeared and they keep on accumulating. They are nicely named as "divergences", which have the fundamental character and which are the serious hindrance of further development of fundamental and applied science.

The numerous attempts to combine the basic fundamental interactions on the base of conceptions existing in modern physics turned out to be practically unsuccessful. The amount of opened "elementary particles" of matter does not correlate with the full uncertainty of their structure. Energy of radiation of the stars including the Sun is not explained because its radiation shall wear out long ago taking into consideration the time. Even in such a developed field as electrodynamics we have the whole classes of problems, which cannot be solved in the frames of

existing theory. For example with the movement of two similar charges a paradox appears: quiet similar charges should repel from each other by the law of Coulomb, but they attract each other because they are the currents. If they are still immovable in relation to each other, then why do they attracting in the movement?

In spite of many public appearances, statements and popular and special articles having the aim to prove the greatness of modern physics and great possibilities, which are waiting for the mankind in relation with its achievements, we should state that there is no anything similar in reality. There are a series of contradictions, so called "paradoxes" in physics; some of its theses became discrepant with the theses of dialectical materialism. For example, the idea of "Big explosion" is in contradiction to the thesis of dialectical materialism about the absence of origin, birth or creation of the Universe. But some theorists suppose that dialectical materialism should be corrected because some parts of it are in contradiction with the universally recognized theories in physics, for example with the relativity theory.

In the applied physics different promises do not realize nevertheless. Many years passed from the moment when the "stable plasma" was created and existed for 0,01 second. Since then the numerous units were constructed to get a thermonuclear energy, which should provide the mankind with the energy. However the units exist, institutes and plants were built for this purpose, conferences and meetings are hold, awards and academic degrees are given... The only problem is: we have no thermonuclear energy itself, and nobody knows if it will ever appear.

We have spoken a lot and for a long time about STR – scientific and technical revolution, about achievements of science; the nuclear weapon and nuclear power were created, the flights into the close space were organized, the numerous materials were developed, computers of high complexity, robots and other things were created, and so on. However with all this we should state that the quantity of new discoveries decreases and development has a quantitative character, and even with the studying of "elementary particles" of the



each other, but they have equal Poynting vector  $P$ , and place them coaxially then ether will move asymmetrically according to law of conservation of the quantity of the motion, and the result for it is the propulsion force  $F_t$ .

At the present time the third model of the fragment of the engine was built and its main technical parameters were measured. So, on the frequency of 80 kHz we measured that the electric intensity is  $E=10^5$  V/m, the total electric intensity is  $E=10^6$  V/m, the magnetic intensity is  $H=2 \times 10^4$  A/m, the Poynting's vector is  $P=10^{10}$  Joule/( $m^2 \times s$ ), the propulsion force is  $F=60$  N (about 6 kg-force) if the input power to one LC circuit of the system is about 10 kW. The system is shown on the photo.

In the near future will start experiments on engines based on the "pondemotor effect": measurement of rotation moment, interaction between the exciter and its mirror reflection from the Earth surface and so on. We started to design a fragment of the engine with radius  $R=40$  m, which will create  $P=10^{14}$  Joule/( $m^2 \times s$ ) and  $F_t=3 \times 10^4$  N (about 3 tons).

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# Propulsion From Relativity Effect of Inertial Force

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**Many scientists challenged to get propulsion from inertial force. No one succeeded. Here we show the possibility of propulsion system by the effect of relativity of inertial force. Activity matter may be a gravitational wave or "space-time". We named it "space-time propeller". If we success to show that the system will work, then we will get a propulsion from electric power.**

The system consists of a turntable and 2 wheels. Wheels were set on the edge of this turntable. We call it "space time propeller ". Proper time at point P in wheels will be delayed by rotation of turntable and wheels. This delay depends on the position in the wheels. Delay describes as follows, if we neglect the effect of own mass of wheels. We do not need to think about mass of the turntable. The " $\tau$ " is proper time on P. The " $t$ " is the time at the inertia system fixed on the center of a turntable.

$$d\tau = \gamma dt \quad (1)$$

$$\gamma = \frac{1}{\sqrt{1 - \frac{r^2 \omega^2}{c^2} - \frac{R^2 \Omega^2}{c^2} - \frac{r^2 \Omega^2 \cos^2 \varphi}{c^2} + \frac{2rR\omega\Omega \sin \varphi}{c^2}}} \quad (2)$$

In general the "inertial force field in the accelerated coordinate system" is in inverse proportion to proper time of each point.

$$\text{inertial force field} = -\frac{dx_\mu}{d\tau} \quad (3)$$

In the case of the space-time propeller, the sum of inertial forces on each point of wheels is not equal to zero.

It means that all the sum of inertial forces in wheels is never canceled. It is a "relativity effect". We call this phenomenon the "inertial force deviation".

**Non-compensated inertial force =**

$$= \int_{\text{Volume of all Wheel}} -\frac{dx_\mu}{d\tau} dm \neq 0 \quad (4)$$

The new propulsion force is just a non-compensated inertial force. If we put plus spin on the turntable and minus spin on wheels, we can get directed propulsion.

**How many propulsion we can get? We can get 70,000 N propulsion under the following condition. The radius of the turntable and wheels is 1m; linear density of wheels is 10Kg/m, frequency of rotation of turntable and wheels is 16,000 Hz.**

The idea of the space-time propeller includes 2 problems. The first one is that we used a rigid body in above discussion. But any terms will not be divergent under the condition that  $\lambda$  in (2) is real. Therefore we can avoid the physical failure in above discussion. The second one is that active matter is unknown. According to above discussion, we can't explain energy-momentum conservation.

We should find an active matter to explain the energy-momentum exchange mechanism. It is natural to think that the active matter is the gravitational wave. It means that the space-time propeller "kicks" the space time like the propeller kicks the air.

To explain that active matter is a gravitational wave, we need to know the structure of space-time inside of

the rotating solid-state object, which is filled with mass. It is an inner solution of Einstein equation of the rotating solid-state object. The inner solution of rotating solid-state object is unknown. If the shape of the rotating solid-state object is a sphere, then inside of it space-time must have characters of Schwarzschild inner space-time and rotating coordinate system. And it must be continuous smoothly with Kerr space-time on the

surface of the object. If we get above solution, then next we will discuss the external space time of the rotating solid-state object, which has valuable rotation. The solid-state object, which has valuable rotation, can generate a gravitational wave. We will be able to get information of energy-momentum conservation by analysis of above gravitational wave.

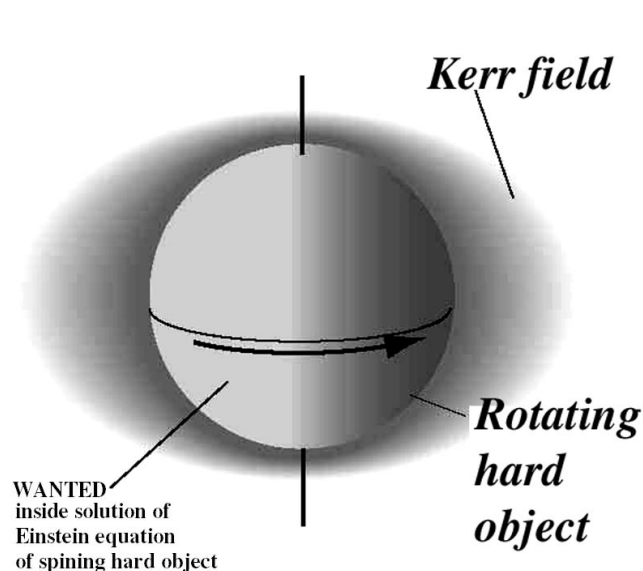


Fig.1 Space-Time propeller.

Rotation of the turntable and the wheels causes a difference of time delay late in the turntable and the wheels. Time delay in the wheels (at point P) depends on  $\sin\phi$ . It means that time delay of P at  $0 < \phi < \pi$  and P at  $0 > \phi > -\pi$  is different.

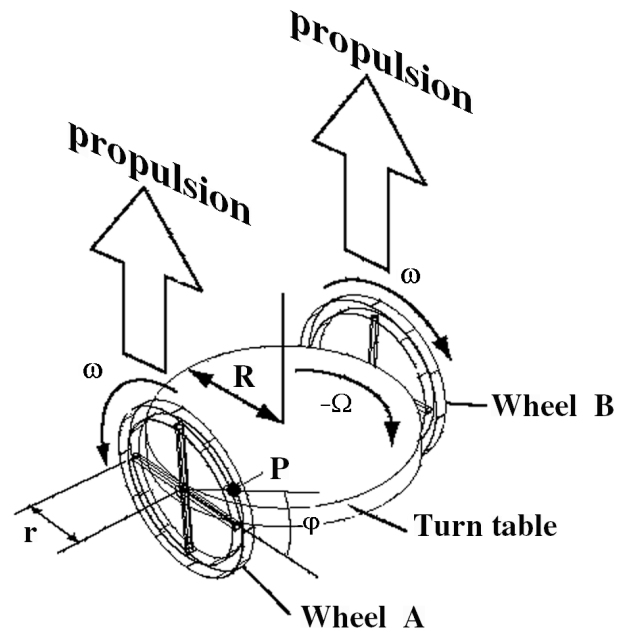


Fig 2. Space-time image of rotating hard object.

Space-time structure of inside field of rotating hard object is unknown. Out side solution should be Kerr field. Both fields should be smoothly continuous. To know the structure of inside field is the first step for the discovery for activity matter of space-time propeller.

## Rythmodynamics of Amplitudeless Fields

Yu. N. Ivanov

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*Theory is a well-reasoned hypothesis!*

*In this article we give an example of hypothetical black holes and effects, which accompany this phenomenon. This example helps us to develop the closest reason of gravitational attraction of the bodies. Also we introduce new ideas of amplitudeless field (gravitational field), amplitudeless quantum (graviton), frequency horizon. It is supposed that the reader has already got acquainted with the main principles of monographs "Rythmodynamics" and "Frequency space".*

## BLACK HOLES

In the XXst century all people know about black holes. "According to the Newton's laws and theory of relativity even the only one quantum of light cannot leave the star. Space in the place, where black hole appeared, becomes distorted and isolated in itself." [14].

In the world of science when we speak about black holes two theories are considered to be principal. These are classic (diffusive) and "neoclassic" (Buracanian) concepts of cosmogonical process. The first one is based on the ideas and constructions by V. Gershel (the end of the XVIII century). V.A. Ambartsumyan proposed another concept in the late 40s of the XX century.

In contrast with the "classics", who consider black holes to be the natural steps of evolution of substance, the «buracans» postulate the hypothetical "prestellar substance" (D-body) as a relic heritage of cosmogonical

# PHYSICAL PROPERTIES OF “AXION (SPIN) FIELDS”

## Influence of “Axion Field” on Hardness of Pearlitic Cast Iron

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The samples of iron alloys were tested on their microhardness in 1993 by means of the equipment PMT-3 (see “Results of experiment on studying of influence of axion radiation on hardness of metal”). The tests were made to find the possible effects of axion fields on the various material objects. As a result of test the changes in microhardness were registered. These changes were both the decrease and increase of microhardness. A series of experiments on pearlitic cast iron were made in 2000 (C-3.5%, Si-0.8%, Mn-1%, S-0.15%, Cr-1%, P-0.15%).

In the laboratory of KSS Iron Kazgan mechanical plant the tests of surface hardness were made by Brinell's method.

The tests were conducted with the load of 3000 kGauss and a ball of 5 mm diameter. Generators of three modifications were used for radiation. They are the generator «COMFORT-M» (K), the generator with an optical excitation (O) and the generator of (S) type.

Radiation by various types of generators showed the same increase of hardness of pearlitic cast iron in the

limits of error. Hence, we can make a conclusion that the reversible phase conversion, which was unknown before, takes place in the cast iron under the influence of “axion field”. This process gives a fixed step of hardness change.

#	Type of generator	Average value	Error	% of change
1		460,5	5,5	11,4
	K	512,8	5,3	
2		470,4	4,4	9,1
	S	480,1	7,4	
3		403,4	17,2	10,3
	O	445,0	6,2	

In the laboratory of material composition of Chemistry-metallurgical Institute of Academy of Science of Republic Kazakhstan the measurements of hardness were made on the separate phases of cast iron (pearlitic, cementite and conglomerate). These measurements were made by means of the equipment PMT-3 with the load of 50 Gauss and microscope magnification of 487\*. The diamond pyramid with a square base and vertex angle between the opposite sides of 136° was used as a indenter instrument (indicator). The radiation was made by “axion field” generator “Comfort-5”. The results of measurements are given in the table.

From this table we can see that pearlit and cementit conglomerate phases are mostly expose to the influence. It can be explained by the maximal activity of carbon in these phases.

#	Phase component	Average value	%of change
1	Pearlitic phase before the radiation	416,0	15%
2	Pearlitic phase after the radiation	478,2	
3	Cementit congl. before the radiation	1524,1	17,8%
4	Cementit congl. after the radiation	1794,8	
5	Cementit plast. before the radiation	1711,6	-2,4%
6	Cementit plast. after the radiation	1670,5	

### Results of experiment on studying of influence of axion radiation on hardness of metal

Measurement of metal hardness is one of the kinds of mechanical testings. Hardness is an integral property, which is defined by many mechanical characteristics of the studied material (plasticity, limit of elasticity, toughness, etc.). The influence of axion radiation (AR) on the hardness (microhardness) of ferricarbonic alloys was studied in the given research. In particular we studied steel and cast iron selected from the production technical prototypes.

Measurement of hardness was made by means of the equipment PMT-3 with the load of 20 Gauss, 100 Gauss and 200 Gauss and microscope magnification of 487\*. The diamond pyramid with a square base and vertex angle between the opposite sides of 136° was used as a indenter instrument (indicator). The results of measurements are given in the table.

As we can see from the table, the change of hardness values during the influence of AR in comparison with the initial state of iron took place practically in all cases. So, for the mild annealed steel 08J the decrease of

hardness was observed at 6-8%, i.e. weakening of metal took place. For the high-carbon alloys (steel of V-8 kind, cast iron ) the increase of hardness took place at 27.0-35.0%, which is the evidence of occurred hardening.

Thus, it was stated that AR influences the atomic- crystalline state of ferricarbonic alloys, and it was proved by the change of hardness.

/Signed/

L.A.Dachno

The chief of laboratory of metal - management and plastic deformation

The characteristic of a sample of metal	Value of microhardness, kg/mm <sup>2</sup> * H%, H (relative change of microhardness)				
	Initial condition	Source AR-FeO	Source AR-Mn	Source AR-C	Source AR-Se
Steel 08J (C=0.08% of weight, annealed, sheet)	161.2±2.4	151.6±3.0 (-0,6%)	148.2±5.3 (0.8%)	164.8±5.4 (+2.0%)	151.7±4.8 (-6.0%)
Steel U-8 (C=0.8 of % of weight)	636.6	60.5±30.8 (+35.0%)		810.4±17.4 (+27.0%)	
Cast iron (C>2.5%)	361.4±9.8	521.3±68.7 (+31.0)			

## Inertial Propulsion Drives

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### Introduction

The notion “inertial propulsion system” or device, which is moved by means of inertia forces, requires an exact definition. Usually the “drive” is a wheel, track, propeller or gas flow reaction. By means of “drive” the moving device is attracted or repulsed to the support, which exists outside the device.

Inertial drive does not interact with any support outside the device, but it interacts with the body of device by means of inertia force.

So, it is more true to name the inertial drives as an “inertioid” according to inventor Tolchin, Perm city, Russia. He has been made such sort of systems for more than 30 years [1]. His book about mechanics of 1969 was the cause for critical attacks on inertioids. For example, Dr. Gulia [2] states that unidirectional motion by means of inertia forces is impossible. But other scientists [3] like Dr. Levinson L.B., for example, wrote that all calculations in techniques take into consideration real inertia forces.

So, the notion of inertioid depends on the notion of inertia. Theoretical researches have a conclusion: reality

of inertia forces follows from Newtonian mechanics, but the fictitious inertia forces are the effect of Einstein's relativity theory.

According to Newton, there are three real inertia forces: second law force, centrifugal force, Coriolis force. Let's consider the notion of space and forces.

### Space

According to modern concept, the space is a closed material medium (Ether), which expands. All bodies are connected by gravitation field and they move. Magnetic, electric, electromagnetic and gluon fields also exist in vacuum. The space does not exist without a physical vacuum, which is a material medium, like river and sea cannot exist without water. Physical vacuum consists of moving virtual particles. The geometry of the space is Euclidian.

### The Gravitation Field

The value for intensity and distance of propagation of gravitational field in space depends on the value of mass, numbers of atoms; those consist of particles (protons, neutrons, electrons). Each particle has its own gravitational field and it conforms to the fact: air atmosphere of the Earth (atoms and molecules) is kept near the planet by gravitational field. From Mendeleev's periodical table it is obvious that atom, which has more protons, neutrons, electrons, has greater mass and gravitational field. So, gravitational field of any body is a joint, total field of all neutron, proton, electron

# On the Significance of Conical Shape of Rotor in Clem's Generator

Alexander V. Frolov

At first I found information about Clem's generator on a web site <http://prometheus.newpower.org/>. I have principally different understanding of the given technology. Creation of the given motor-generator is impossible without such understanding, so I should dispute with authors of "Prometheus" web site.

So, in 1972 Richard Clem announced that he invented an automobile engine of a closed cycle, which produced 350 horsepower and worked in self-running mode. The generator weighted about 200 pounds. The main part of its mass is rotating vegetable oil, which was heated up to 150°C during its work. Due to this reason we should not use water because it will boil. There is a conical rotor inside the generator and it is fixed on a horizontal axis. The axis, on which this conical rotor is fixed, is empty. The oil moves inside the axis and passes into spiral coreless channels inside the conical rotor. They are wound round the conical rotor and they end near the foundation of the rotor with nozzles (atomizers).

The figure is taken from the web site "Prometheus" <http://prometheus.newpower.org/>

In the beginning of operation the starter motor produces rotation and the liquid is given to the central axis (axle) by the pump under the pressure of 300-500 pounds on 1 square inch. Then the liquid flows by spiral channels and runs away through atomizers. The more the pressure of liquid, the more rotation momentum of the rotor is.

Thus the rotor is placed inside the box (body), the liquid (oil) does not consumed. Liquid is heating during the work that requires the presence of heat exchanger to emit heat into environment. The rotor begins its self-rotation with some speed, which is independent from the starter motor. Speed of rotation is about 1800-2300 rpm.

The main question is: "Do we necessarily need a conical rotor or a cylindrical one?"

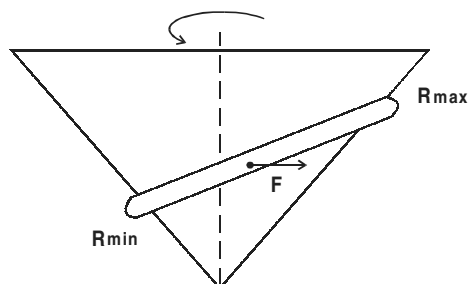


Fig.1

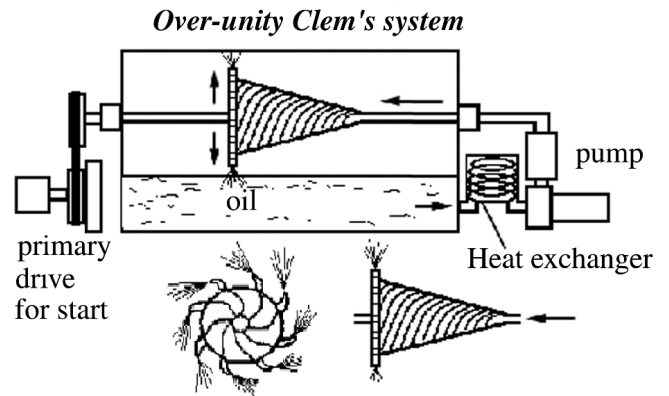


Fig. 2

Let's imagine the conical rotor with a tube winded on it and placed into some conical body:

Cone is an essential part of this design, since this is a gradient of centrifugal force that act on liquid and makes it to shift in the area of bigger radius of rotation (except the force, which is created by the pump). So we get a closed logic chain. Rotation creates centrifugal force, which creates pressure to the wall of conical channel in such a way that this pressure accelerates rotation and increases centrifugal force. The more the pressure of liquid, the quicker the cone rotates increasing pressure.

It is evident that atomizers also do their share in the work of generator increasing moment of rotation. This effect was previously known as "turbine by Heron from Alexandria" and later as Segner's wheel.

However, conical shape of the rotor allows getting a directed axial tractive force that can be used in reactionless drive of a new type. Of cause, the direction of rotation and direction of conical spiral should be coordinated.

**Conclusion:** The conical shape of the rotor creates a gradient of centrifugal force. Due to this, the movement of liquid appears, which goes in the direction of maximal rotation radius. Momentum of this movement is transferred from liquid to the body and the whole system will have a propulsion force. The tangential component of this force is responsible for rotational momentum of the rotor. So, modern development of different versions of Clem's design seems us to be a very perspective project for the future fuel-less energetics.

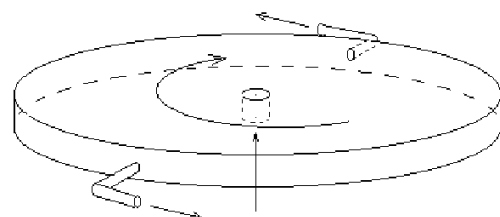


Fig. 3

# On History of Cold Nuclear Fusion in Russia

Review prepared by Alexander V. Frolov

On December 25, 1991, the Moscow Council got an official letter from the Moscow Committee on support of the work by Ivan S. Philimonenko (G.V. Kravzov was the chairman of this committee). The letter told about development work made by the scientist, rocket-space techniques designer Ivan S. Philimonenko. This committee expressed its concern about the delay of the development work in spite of their great importance. The author of its work was infringed upon his professional and social rights.

As it follows from the facts presented by the declarant, the development work by Philimonenko concerned the creation of pollution-free energy systems, systems on neutralization of radiation and associated units.

According to the profile of its activity the Subcommission of Moscow Council on ecological problems of industry, energetics and transport studied the given problem in-depth and made a huge work to define the real state of affairs. Together with the Standing commission of Moscow Council on legality, law and order and human rights protection and Standing commission of Moscow Council on science and techniques, the Standing commission on ecological problems of industry, energetics and transport (hereinafter referred to as the Subcommission) made the following:

- studied the publications devoted to the works of Ivan S. Philimonenko published in Russian free press;
- required all necessary information from the corresponding organizations;
- acquainted through its representatives with technological start of this type of works on the corresponding plants;
- contacted with the Supreme Soviet of Russian Federation, RF ministries and departments;
- intimately contacted with the author of the developments and his colleagues;
- took part in a number of meetings, conferences, symposiums of the corresponding subject conducted in Russia, Ukraine and Byelorussia.

As a result of this work the Subcommission stated the following reliable information about the scientist and designer Ivan S. Philimonenko and his development work. In 1960 the Head Space System Designer Sergey P. Korolyov, Marshal Gregory K. Zhukov and Acad. Kurchatov assisted these new developments. Kurchatov thought these works would be of great importance in future and said it to the inventor during their discussions. Marshal Gregory K. Zhukov personally sent a wire to the Kremlin: "Being concerning about the destiny of Russia, I ask to sign this resolution". He mentioned the Resolution of USSR Council of Ministers

and USSR Central Committee of the Communist Party #715/296 of 23.07.1960. A development of new methods to produce energy and protection from the nuclear radiation by I.S. Philimonenko was planned according to the following principles. They are:

- high efficient generation of energy;
- creating of thrust (propulsion) without the reactive mass flow;
- protection from the nuclear radiation.

Approximately 80 organizations were drawn to this research program, for example "Lutch", "Red Star", Research Institute of Heat Processes, corporation "Energy", Russian Academy of Sciences, Ukrainian Academy of Sciences and Byelorussian Academy of Sciences. Ivan S. Philimonenko was appointed as a responsible senior designer of this line. The first outstanding result of this program was the creation of energy systems "Topaz-1" and "Topaz-2", which were used on the satellites "Cosmos-1818" and "Cosmos-1819".

The next step of the program was to develop and create the pollution-free thermoemission hydrolytic energy system (TEHES), which has no analogies in our country and abroad.

The difference of TEHES from "Topaz" is the usage of low temperature nuclear fusion system as fuel element instead of a nuclear reactor. The nuclear fusion system works in low temperatures ( $T=1150^{\circ}\text{C}$ ). Its lifetime will be 5-10 years without refueling (the fuel is heavy water).

In 1960-68 they have got the first positive result, which could be applied for production. In particular, they got power output parameters of the system of 200 Watt, hydrogen and oxygen were generated as well as such components as helium 3, helium 4, tritium, oxygen 16, oxygen 17 and oxygen 18. It was the evidence of the fact that they have got the nuclear fusion with the temperature of  $T=1150^{\circ}\text{C}$ .

The author stated that these systems do not emit any pollutants to the environment during its operation. They consume heavy hydrogen only. TEHES could become a real alternative to the existing faulty energy systems (nuclear power station, heat-electric generating station, hydroelectric power station, boiler-house, diesel, etc.).

Also TEHES could be applied

- in industries, which consume hydrogen (airplanes TU, for example), oxygen (metallurgy);
- to power existing combustion engines instead of liquid fuel;
- in new generation of engines for the water, land and air transport;
- as an autonomous long-term energy systems at home, in the rural areas, in back regions.

As the scientist states, the systems of a special modification, analogous to the above-mentioned

systems, can neutralize radioactivity, for example those emitted to the environment (in Chelyabinsk, Semipalatinsk, Novaya Zemlya, Chernobyl). Systems to neutralize the radioactivity could be placed on the land, air transport, and spacecraft for the corresponding purposes.

In 1968 the official works by Ivan S. Philimonenko were stopped, and the author had no chance to complete his experiments on neutralization of the radiation.

**In 1962 Ivan S. Philimonenko got a patent priority # 717239/38 of 27.07.1962.**

Later he tried to register it as a discovery, but on 30.12.1970 he got an official answer # OTED 1179 about the necessity to revise his application due to the factual multiply of his claims that is not one discovery but several discoveries. That's why he still has no patent for his inventions.

Also his ideas were discussed in free press. Those are: "Tekhnika Molodyogi" #2, 1970, newspapers "Moscow Pravda" of 16.04.1971 and "Socialistic Industry" of 24.04.1971.

The announcement about the cold fusion experiment made by American scientists Stanley Pons and Martin Fleischmann followed the works by Philimonenko. The interest to the cold fusion in Russia increased again. During 1989-90 in NPO "LUTCH" Minatom RF two experimental models of energy system by Philimonenko were produced to recommence the experiments on cold nuclear fusion. Then three thermoemission hydrolytic transformers for the pilot energy system were developed and created. Necessary experimental and design works were made. Preliminary methodical provision on calculation of the systems was made.

The high level of the systems made by Philimonenko is proved by the fact that USA acquired the thermoemission nuclear reactor «Topaz», which was mastered by USSR space industry.

Technical characteristics of TEHES systems, in comparison with the existing nuclear power stations and nuclear energy systems under project ("Tokomak"), showed that the thermoemission nuclear technology has big advantages in front of the fission reactor. However, as we know, the works on realization of nuclear energy systems based on the light nucleus fusion are monopolized by the line oriented on the thermonuclear fusion on the systems of "Tokomak" model. This work has been conducting for 40 years and the Director of Institute of Nuclear Energy E.P. Velikhov considers, that we can expect such results not earlier than the middle of this century.

Now there are a lot of articles about Ivan Philimonenko and his works published in free press. The committees to support the work of the scientist were established in Moscow, other Russian cities, Ukraine and Byelorussia. Foreign scientific and military organizations are

interested in his developments, USA in particular. There were some attempts to repeat the experiments by Philimonenko on cold nuclear fusion (1989). In this case we cannot exclude the drain of information from Russia.

As the author of these developments consider, the further work requires the initial, developmental and resource testings on the existing scientific and experimental base in Moscow

Nowadays there is a problematic environment situation in Moscow and in Russia as a whole. There is a direct relation between the increase of radiation pollution and oncological sickness rate and death rate. In this connection the development work by Philimonenko is of great importance.

The Subcommittee attended to the further worsening of ecological situation. Together with the Moscow committee on support of the works by Philimonenko addressed to various departments and tried to attract their attention to the Philimonenko's developments (1991-1992). This information reached RF President and Government. President gave an order to Russian Academy Of Science (Osipov Yu. S.) and the Ministry of Russian Federation on nuclear energy (Mikhailov V.N.) to prepare the proposals how to continue the works by Philimonenko. But the President of RAS, Acad. Velekhov E.P. announced that these materials do not contain any scientific and technical information, which could be useful to estimate the ideas by Philimonenko.

*There is a question: Who should estimate new ideas? One time more it seems evident that RAS can develop scientific problems only in the framework of existing conceptions and RAS is not ready to support qualitatively new ideas.*

In 1992 the Subcommittee on ecological problems attended the NPO "LUTCH" and had a meeting with scientists and deputy director on production Kleschyov A.M. He and his colleagues proved that they have been working to reconstruct the system (TEHES) under the leadership of Philimonenko. The system itself and design documentation were also demonstrated to the Subcommittee.

The Subcommittee was surprised with the fact that leaders of Russian science had not found any chance to get acquainted with these ideas and their realization. The Subcommittee hopes that in spite of Russian instability the government bodies will find some ways to pay attention to the unique developments made by outstanding scientist.

On the basis of this analysis the Subcommittee made the following conclusions:

- To recognize the works by Philimonenko to be an outstanding achievement in Russian science.
- To give the inventors certificate to Philimonenko on his TEHES "KURS".



- To restore all professional and social rights of the scientist.
- To address the Russian government for the support in further realization of Philimonenko's developments and assign a priority on these developments to Russia.
- To revive the testing works on Philimonenko's TEHES as well as studying and introduction of his developments on protection from the nuclear radiation.

### Short biography

Mr. Ivan S. Philimonenko was born in 1924 in Irkutsky region. In 1941 he went to the front of the Great Patriotic War. From 1941 till 1945 he has been taking part in military operations on the North-West, South-West, 2<sup>nd</sup> Ukrainian and Zabaikilsky fronts of the Great Patriotic War as a scout. He has the Order of Red Banner, medals for the Victory over Germany, for the Victory over Japan and others.

From 1945 till 1951 he has been studying the Technical School named by Bauman and showed himself to be an advanced, disciplined and active student. He had an authority over other students, heads and teachers of the faculty.

From 1951 till 1967 he has been working in OKB-670 (design bureau). He began as a technician-designer and from 1963 he has been working as a senior designer. In 1954 he got an academic degree in nuclear physics.

From 1967 till 1968 he has been working in MKB "Krasnaya zvezda" as a senior designer. The leaders of the bureau honored him for the successful works on creation of new techniques.

In June 1968 he was discharged due to liquidation of the department from the structure of the bureau. Analysis of this situation made by the Subcommission allowed finding out that the liquidation of this department was made due to:

- the conflict between Ivan S. Philimonenko and leaders of the bureau, because he found some breach in technological process in this bureau, which caused the radionucleid pollution of the Moscow surroundings;
- the course of technical policy of this industry was changed by the higher technical leaders. They were oriented on development and creation of systems using the energy of nuclear fission of heavy chemical elements isotope and creation of nuclear power stations and systems of "TOKOMAK» type.

From 1968 till 1989 Ivan S. Philimonenko has been practically unemployed. He tried to address in various departments with a requirement to continue his scientific work and creation of pollution-free thermoemission hydrolytic energy systems and systems for radiation neutralization. But he had no positive results.

In 1989 Ivan S. Philimonenko suddenly got a proposal from the firm NTKO "FORT-INFO" to head the works on his subject as a senior designer. 8 months after he was moved to the firm NPPSO "KURS" due to unknown reasons. He had not got any salary there and then retired. Now he is not working on his subject.

### *Editor's: notes on aging aspect*

Mr. Ivan S. Philimonenko, the author of Russian "cold fusion" research program (1960's) claimed the following: all people have about 1400 years of natural life resource. His calculations are based on the real 7-year cycle of human biological cell life period and the known resource of "cell repair", which is about 200 times. In other words, we are living in permanent biological repair process and activity of this repair depends on environment. So, there are  $200 \times 7 = 1400$  years of resource, if there are no any reasons for repair. The cause for aging according to Philimonenko is the so-called "background radioactivity", which we can see anywhere on the planet. It is produced mainly (about 90%) by potassium isotope K-40. It is a radioactivity element and it periodically emits electrons. Human organism is building during many years from natural chemical elements including K-40 and other isotopes. That's why the electron emitted by isotope permanently damages all biological cells on its way. This is the reason for the accelerated spending of the human biological cell resource.

It is important to know the historical fact: the background radioactivity was created by some accident long time ago, and geologists know, when it occurred. Before it all people have been living for many hundred years according to old books and ancient data.

Radioactivity elements of different kinds are collected inside of each human body with food and air. We are "collectors" of isotopes and there are no easy medical ways to remove it from body. ***But now there are new methods to reduce radioactivity by means of special fields.*** Particularly, a special generator based on the Moebius band elements (designed by Dr. Ivan M. Shakhparonov, published in New Energy Technologies, issue #2, 2001) produces stabilization of isotopes, i.e. decreases the radioactivity, and it was measured in many accurate experiments. Also in August of 1995 Atomic Energy of Canada, Ltd., published in Newsletter of The Planetary Association for Clean Energy a review of modern methods to transform the radioactivity wastes. So called "scalar field" can be used for the distant influence on radioactivity.

In Philimonenko's research work of 1960 the same effect was discovered for the "cold fusion" generator. There are modern experiments on vector magnetic field influence on radioactivity, plasma wave and other methods, which are not a theory but a real working technologies, and it can be used to stabilize isotopes in human body. Why this important work is not known yet? Do people have not any desire to become younger? This question is not of technological nature, but of political one.

School, college, office, pension... Now it is a standard 60-80-year period of life to change the "biological material" during the natural selection process. But let's assume, that this short period is not a law of Nature, but some temporary program for the civilization, which is in the initial state of its development. Really, most people are not ready to make their life sensible and purposeful. Thus, they do not need many hundred years of life. Now we already have the new technologies to reduce radioactivity by means of special fields, and the aging process can be normalized up to 1400 years period. Are you ready to think about it?

Modern economy, politics, finance are not ready for it and all old systems will not work in the conditions of new civilization. But the World should be changed for the better one.



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(57) **ABSTRACT**

(21) Appl. No.: **10/957,391**

(22) Filed: **Oct. 2, 2004**

An apparatus which enhances the ability of a person to perform remote viewing by connecting the human spiritual eye to the tetrahedral geometry of subspace.



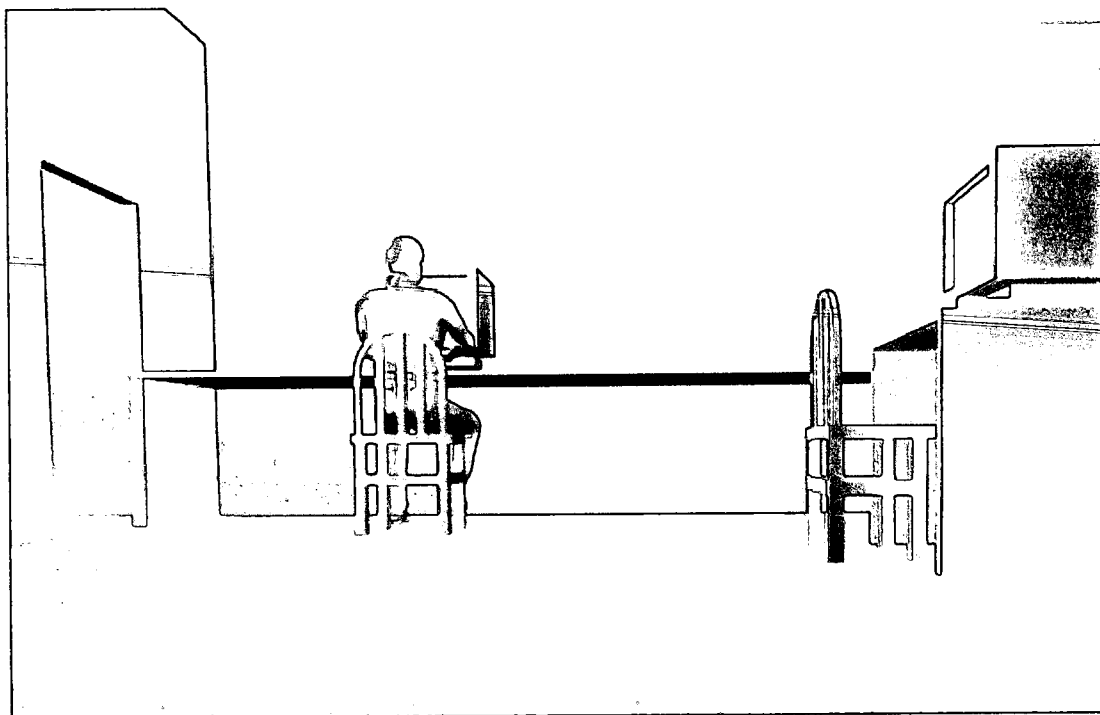
**Figure 1**



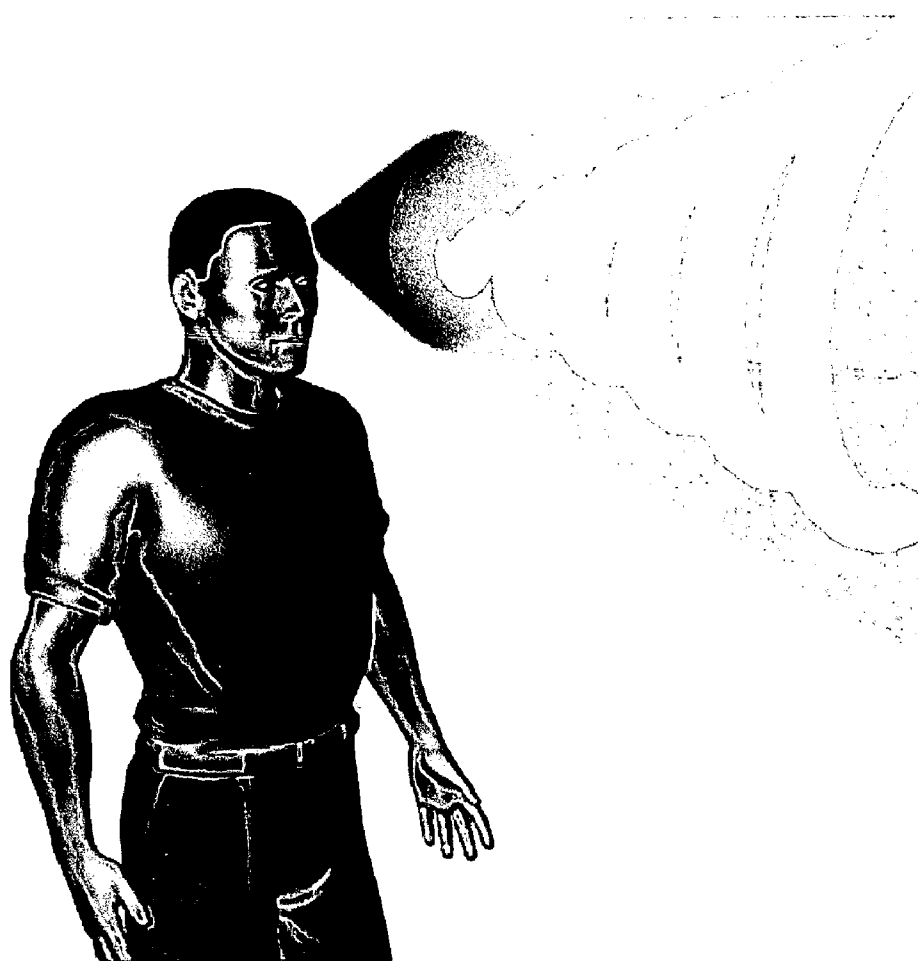
**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**

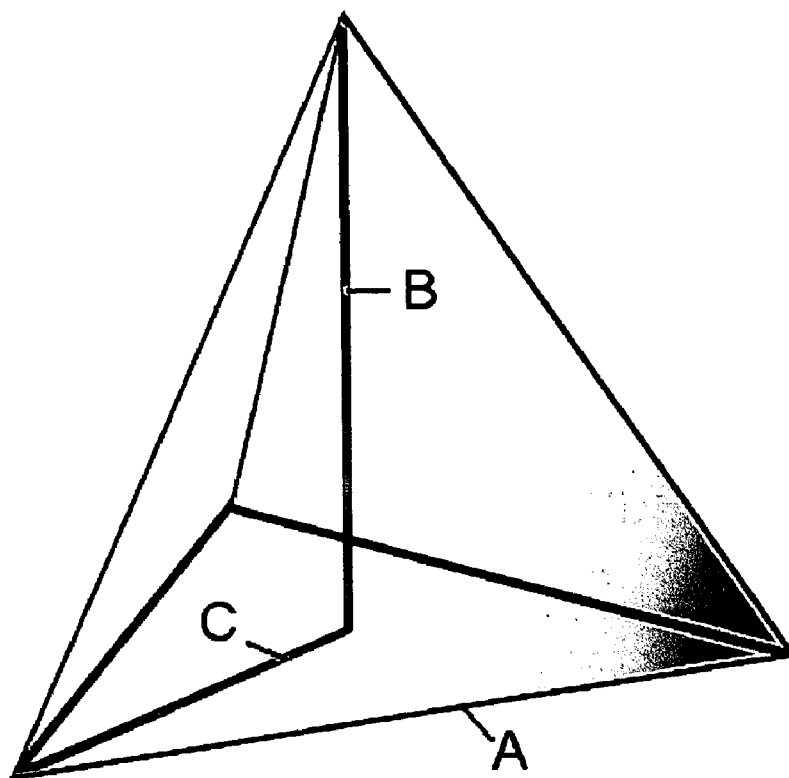
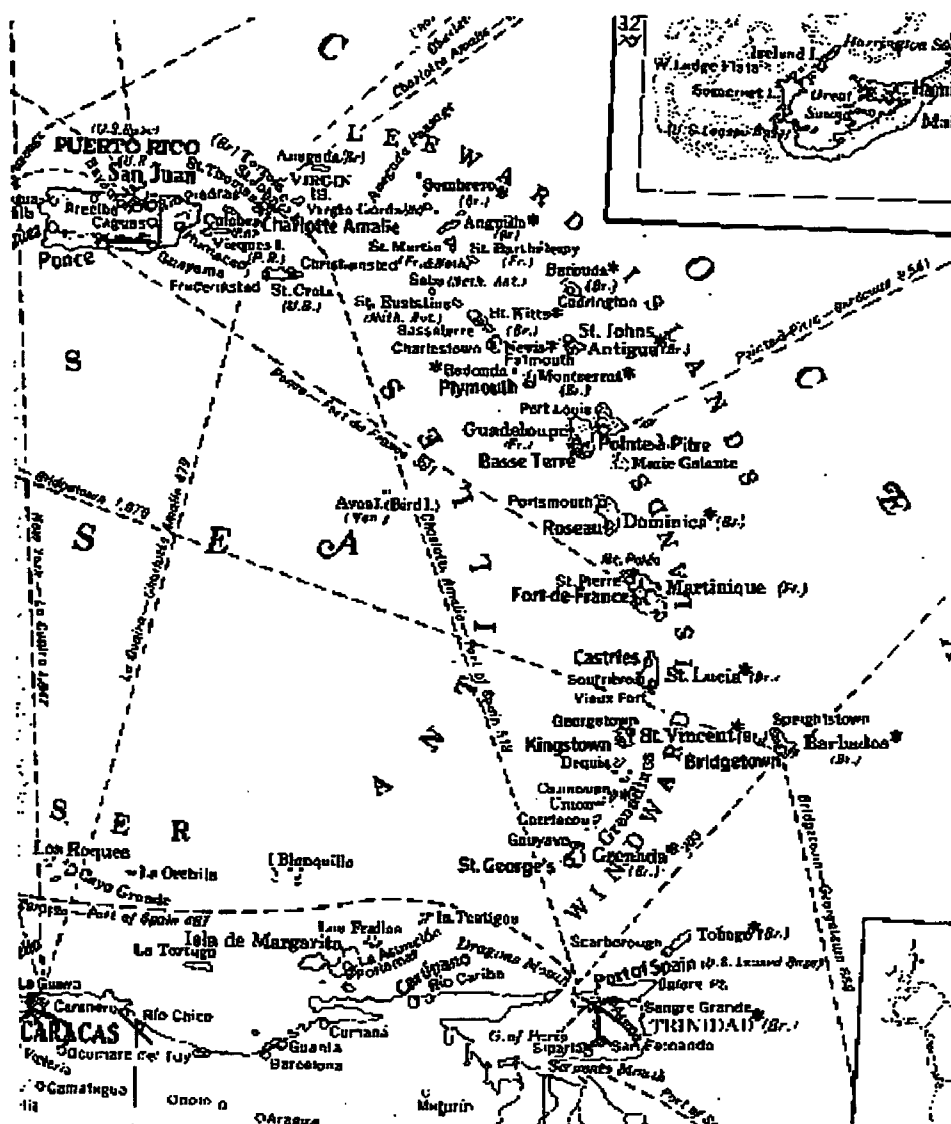






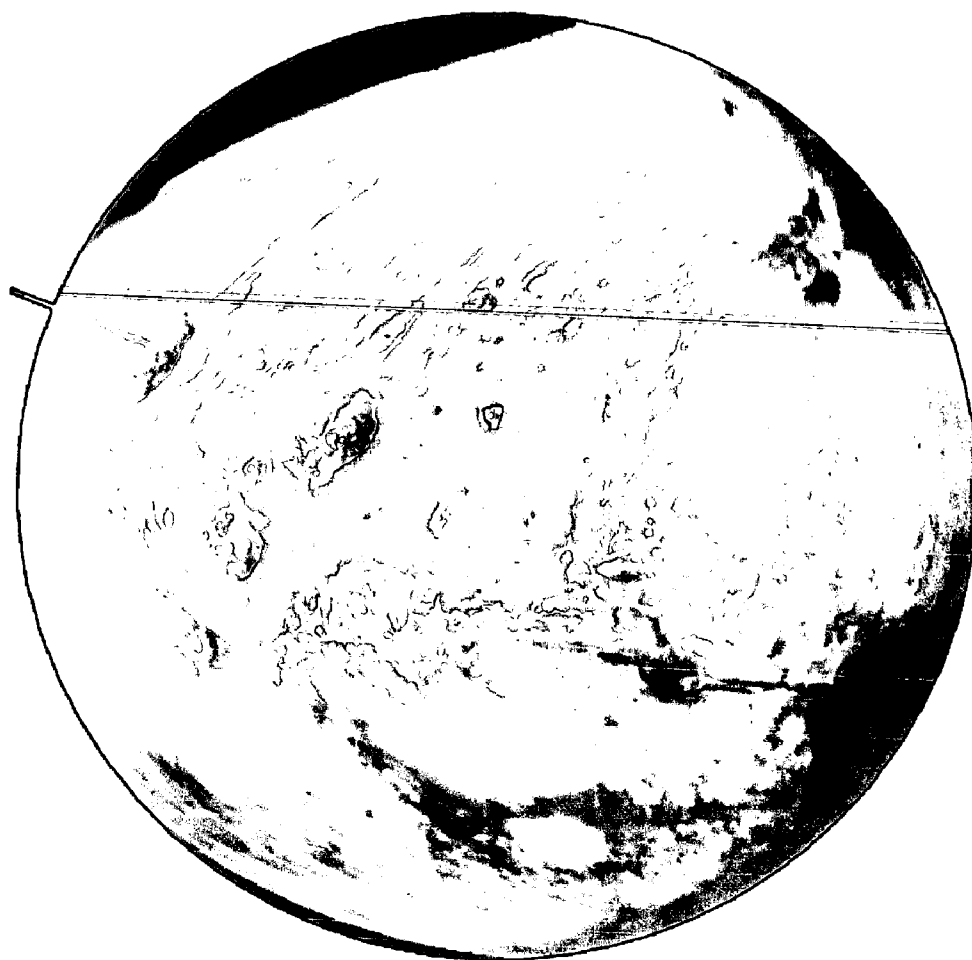
Figure 7



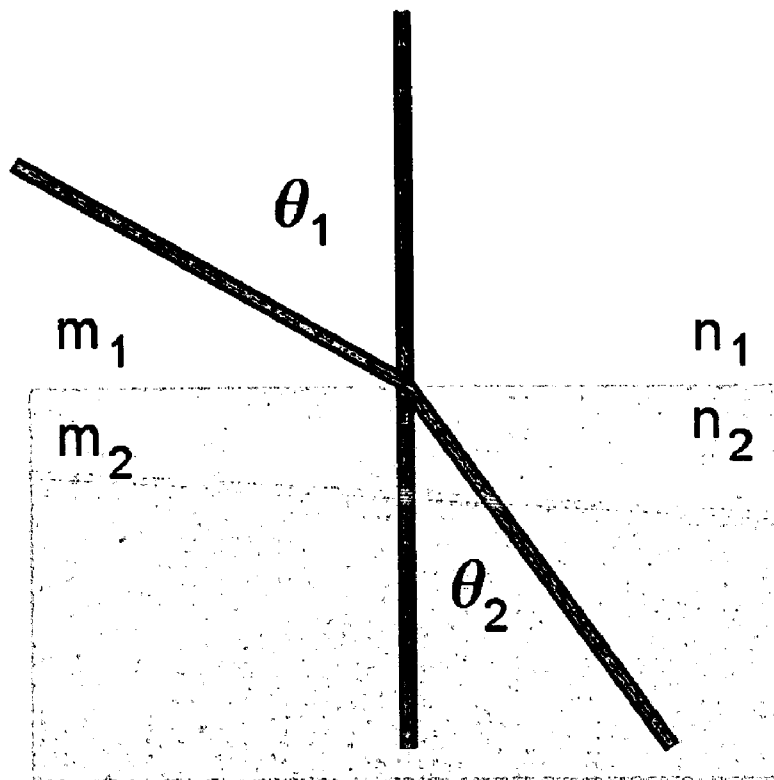
**Figure 8**



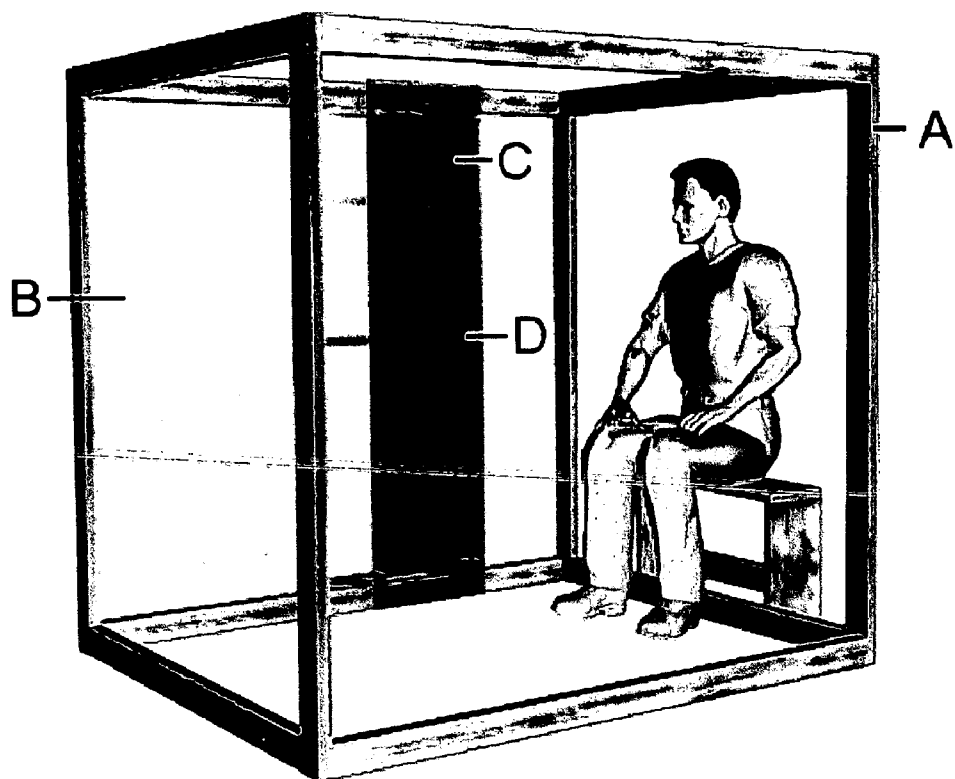
**Figure 9**



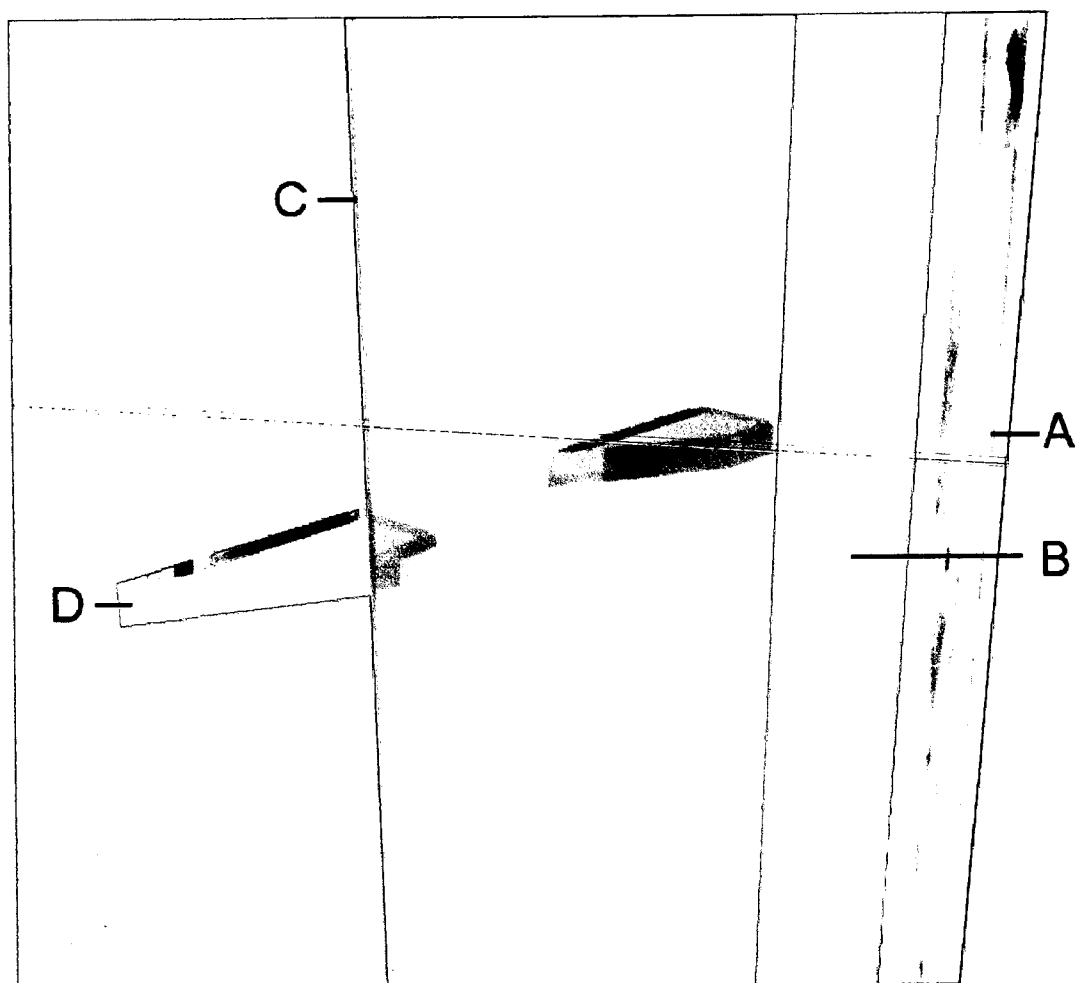
**Figure 10**



**Figure 11**

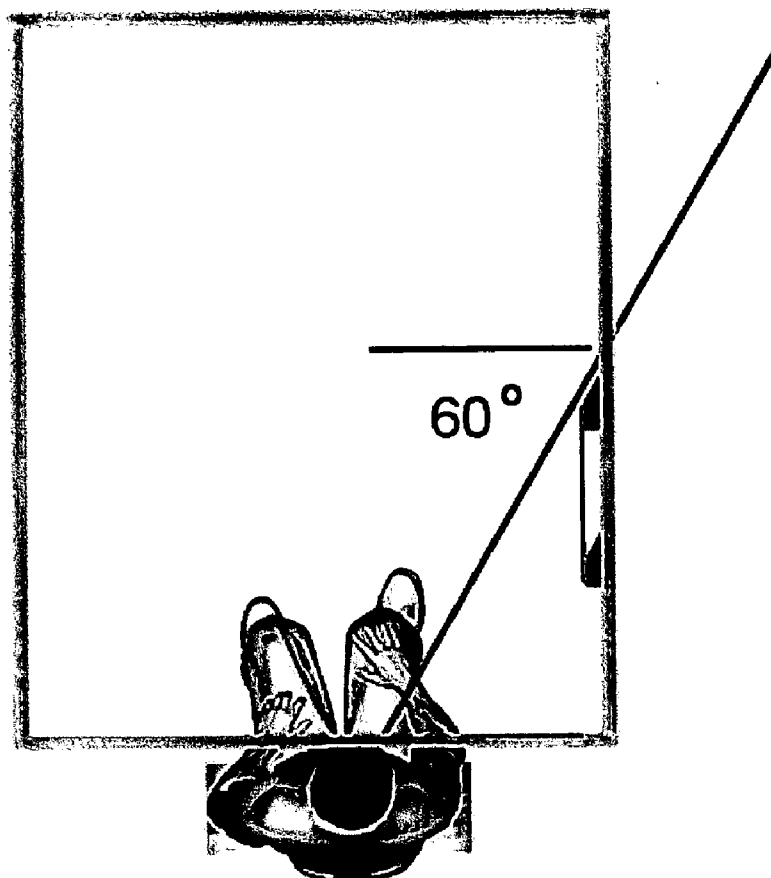


**Figure 12**





**Figure 13**



**Figure 14**



## REMOTE VIEWING AMPLIFIER

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention enhances the ability of a person to perform remote viewing by connecting the spiritual eye to the tetrahedral geometry of subspace.

### BACKGROUND OF THE INVENTION

[0002] Remote viewing is the projection of spiritual modules of the human energy field to distant locations in order to see, communicate and interact with other entities who live in subspace, space and hyperspace co-dimensions of the universe.

[0003] One of my first remote viewings was made at night to a distance of 10,000 miles on the sunlit side of the earth. My spiritual eye and body projected together while my mental facilities remained in my physical body. I found myself looking down on a palm tree from a height of about one hundred feet. The palm tree had several coconuts in it as seen in **FIG. 1**. I then gave the command to lower myself to the ground. At that moment I went sailing down past the coconuts, barely missing the tree! Finding myself on a pathway through the tropical forest, I then came to an extremely long wooden bridge which crossed over a river gorge. On the other side of the bridge I could see three soldiers running toward me as shown in **FIG. 2**. The two soldiers in front were carrying rifles and wearing light blue berets. The man running behind them was wearing an officer's cap with a red band. My first reaction was that I was going to be shot. I edged over on the right side of the wooden railing. They ran right past without seeing me. I then asked to see the building that these soldiers were guarding. Everything went dark, and then I found my spiritual eye peeking out of the floor of a computer room as seen in **FIG. 3**. There was one man using a computer on the opposite side of the room near an open door. He got up from his chair and came over to sit in front of a second computer located a few feet from where I was located. From the glare of the computer monitor, I could clearly see his face. Everything went dark as my spiritual eye and body projected back to my physical body.

[0004] Another time my spiritual eye, spiritual body and mind were standing outside the closed front door of my condominium. Upon patting my legs with my hands, I couldn't find the keys in my trousers. When I looked down, I realized I wasn't in my physical body. I then shot through two solid walls of concrete and returned to my awakening body.

[0005] What these two examples show is that the human spiritual energy system is modular. The reason it is modular is because there are seven hyperspace co-dimensions, each vibrating at a slightly different frequency, which receive energy from space through seven vortices located along the physical body. Over a lifetime, these vortices build up the human aura. Because all energy systems have to be grounded, the remaining six modules are the legs, body, arms/hands, voice, eye and mind. When the entire group is out-of-body as a single entity, then the soul energy powers the body in a manner similar to a battery. The soul looks like a two-inch diameter orange ball of plasma. If the soul is removed from the body, then the body becomes paralyzed except for a small movement of the eyelids. Upon death, all

these separate modules are assembled into a single energy being. A light cord from the soul provides the battery power and information required to join these modules together. A second light cord from the pituitary gland transfers the modules into the energy being for assembly. This energy information transfer is the reason that people in a near-death situation say they saw their entire life flash before them.

[0006] Moving to a larger picture of things that are happening in the galaxy, I was able to make contact with the Pleiadian Federation which is located about 400 light years from earth. The Federation is a group of over one hundred intelligent beings that were brought to the Pleiades from around the galaxy. One member of the Federation calls itself the Intelligent Insect Beings. They are the ones who fly the black triangles over Belgium and France for the purpose of evacuating human beings back to the Pleiades for relocation on a planet called Earth II. The reason for this evacuation was that it was not known if it would be possible to win the battle of Revelations, which would take place about two years later here on earth.

[0007] As could be expected, the humans were angry and hysterical at being abducted. So the Intelligent Insect Beings asked me if I could calm them down. I was in telepathic communication with them, and they were in telepathic communication with their computer system, which meant that I could have my thoughts displayed to the humans on the computer monitor. It turned out that one woman was from Central America and only spoke Spanish. The Intelligent Insect Beings didn't speak Spanish so they thought there would be no way I could communicate with her. So I told them that I would spell the Spanish words letter-by-letter and she could then read my message. Since most Spanish people are Catholics, I thought a religious message would be of importance to her. I spelled out the phrase, "Que Dios te bendiga." which means, "May God bless you." I also asked the two beings to put their hands together in a form of prayer, and the woman followed suit. At that moment the Intelligent Insect Beings were reading her mind to understand her emotional state. They said, "She is crying tears . . ." After a slight but tense pause, they continued, "of joy!" They said the woman had a big smile on her face and was successfully transitioned into her new life.

[0008] One year later, the Blond Aliens of the hundred member council of the Pleiadian Federation remote viewed me so that I could celebrate with them the success of their mission to earth. The Blond Aliens, which is not their real name, fly the Beamship spacecraft. This hyperspace vehicle can teleport itself to any location in the galaxy. It dematerializes into the black void for an instance and then re-materialize anywhere in the galaxy. This ship can be seen in Billy Meier's video from Switzerland along with a picture of their envoy, Semjase.

[0009] Just recently I had a demonstration of the Beamship's ability. I heard an emergency distress call by a commander of a spacecraft who said that they had a fire onboard their spacecraft. I immediately remote viewed a Federation maintenance mothership, they got the frequency and location of the ship, and dispatched the Beamship in time to rescue the commander. The burned-out cables, which had caused the fire, were repaired by the Federation and the commander arrived home safely on his planet in his own spacecraft.

[0010] The Federation then received a message from the commander saying that he wanted his planet to join the Federation now that there was this type of communication available. So the Federation visited his planet for the signing ceremony, and I was invited to attend the proceedings by remote view. Word got around about this, and within three weeks another 20 planets joined the Federation for the same reason.

[0011] At one ceremony, which was attended by Admiral Third Class of the Pleiadian Defense Department, His Highness of the planet was signing the document of incorporation. At that moment, I could see him signing, so I exclaimed, "He is signing with his left hand." The Admiral was almost apoplectic at hearing this. After giving her the signed document, His Highness held up his hand and asked me how many fingers he was holding up. He had a fist so I said none. Then he put his index finger out and I said one. He then made a fist again and I said none. Then he held out all fingers and I said five. The Admiral said that he had a big smile on his face as he went to announce the agreement because he knew, even though his planet was located 90,000 light years away on the other side of the galaxy, he could instantly communicate any problems to the Federation. So this is the importance of developing inventions that can enhance our remote viewing ability because one day it will mean that we can become a vital part of the Pleiadian Federation.

#### SUMMARY OF THE INVENTION

[0012] Referring to FIG. 4, the spiritual eye of the human energy system is located at the pituitary gland in the forehead. It has the shape of a hollow cone which is composed of the misty white energy of hyperspace. Light coming into this vortex is then transferred by a light cord to a visual energy module which is located in a co-dimension of hyperspace. Because these modules are interconnected by light cords, the mind module is able to interpret the visual pattern the eye is seeing. More importantly, the mind can give logical instructions to this spiritual eye module for it to rotate around or move in a particular direction.

[0013] The reason that hyperspace has a white misty look to it is that the speed of light is very much less than the speed of light in our spacetime. The Lorentz transformation says that the distance  $L$  is shortened relativistically to a distance  $L'$  in a way related to the ratio of the velocity  $v$  of the object to the velocity of light  $c$ .

$$L' = L \sqrt{1 - \frac{v^2}{c^2}}$$

If the velocity of light is very low, then a small velocity creates an enormous contraction in length. By moving through hyperspace, therefore, enormous distances can be traversed. And this is the reason that it is possible to project the spiritual eye, voice and hearing to remote locations in the galaxy.

[0014] The universe is composed of subspace, space and hyperspace which are co-dimensions of each other. Subspace is defined by the geometry of the tetrahedron which is a four-sided solid whose faces are equilateral triangles

having three 60° angles. Referring to FIG. 5, a tetrahedron whose sides are the square root of three (A), has a height of the square root of two (B), and base length equal to the square root of one (C). This forms the basic number set  $\{\sqrt{1}, \sqrt{2}, \sqrt{3}\}$ .

[0015] Referring to FIG. 6, the tetrahedron (A) is circumscribed by the sphere (B). Rod (C) is the sphere radius. A second rod (D), of equal length to rod (C), from the center of the sphere to the corner of the tetrahedron makes an angle  $\phi$  of

$$\phi = \text{ArcSin}\left(\frac{1}{3}\right) = 19.47122063^\circ$$

So the four corners of the tetrahedron touch the sphere.

[0016] This tetrahedral geometry can be seen throughout the planets of the solar system Referring to FIG. 7, the islands of the Caribbean curve down from Puerto Rico to Venezuela forming an island vortex. The low density hyperspace energy releasing from the corner of the tetrahedron softens the rock mantle. The hot magma then rises through the rock with the least resistance. This creates a circular arc of volcanic islands along the edge of the vortex.

[0017] Referring to FIG. 8, the Giant Red Spot of Jupiter is located at a southern latitude of 19.5°. This vortex is so large that the entire earth can fit in it.

[0018] Referring to FIG. 9, the Olympus Mons volcano is located at a northern latitude of 19.5° as shown by the marker. This volcano is the size of France. Notice the fallen plume of volcanic debris toward the north east.

[0019] The double harmonic of the tetrahedral angle is twice 19.5° or 39° which is the location of the Silver Bridge in Point Pleasant, West Va. A large wormhole opened up around the bridge during Christmas rush hour when the bridge was full of cars. Due to the low density hyperspace energy, the rivets holding the cables down popped loose and all the cars were dumped into the river. A computer simulation using Schrodinger's quantum mechanics equation for a particle in a potential well shows that as the energy becomes less dense, the particle is no longer contained in the potential well. The electron jumps out. Thus the atomic bonds are broken which softens the rivets. This is the first time that there has been an understanding of the failure mechanism of this bridge.

[0020] After downloading from the Internet several pages of the index of refraction of a wide range of materials, I noticed that the index of refraction for Plexiglas was 1.50. Another source said it was 1.51. One of the Internet sites had a movable flashlight which showed the incident ray and the refracted ray. For Plexiglas, surprisingly enough, the incident ray was coming in at an angle of 60° to the normal, and the light was refracted at 35.26°, both of which are tetrahedral angles. The angle of the equilateral face of the tetrahedron is of course 60°. The angle at the top of tetrahedron is the arc-cosine of the ratio of the height over the edge length.

$$\theta = \text{ArcCos}\left(\frac{\sqrt{2}}{\sqrt{3}}\right) = 35.26^\circ$$

According to Snell's law, the index of refraction  $n$ , times the sine of the angle  $\sin(\theta_1)$  of the ray leaving material  $m_1$ , is equal to the index of refraction  $n_2$  times the sine of the angle of refraction  $\sin(\theta_2)$  of the ray entering material  $m_2$ . Referring to **FIG. 10**, the equation is

$$n_1 \sin(\theta_1) = n_2 \sin(\theta_2)$$

The index of air  $n_1$  is equal to one. The index  $n_2$  of Plexiglas is 1.50. If the incident ray is at  $\theta_1 = 60^\circ$  to the normal, then the output angle is

$$\theta_2 = \text{ArcSin}\left[\frac{n_1 \sin(\theta_1)}{n_2}\right] = \text{ArcSin}\left[\frac{2\sqrt{3}}{3}\right] = 35.26^\circ$$

which is equal to the angle of the tetrahedron.

[0021] Then I recalled several months earlier that I had gone to the Subway restaurant to get a sandwich. I was sitting by the Plexiglas window communicating with the Admiral whose mothership was in earth orbit. She mentioned that they were bringing two people aboard. At that moment I looked out through the window and I could see both of them clearly and easily through my spiritual eye. To my amazement, I saw both of the captives start to pull out guns from behind their backs. I then projected by spiritual hands which resulted in preventing the attack on the security guards. To say the least, the Admiral was rather surprised at these events. She then asked me to look at the design of the window because she thought it had something to do with my enhanced remote viewing capabilities. Looking at the Plexiglas, I noticed that on the edge of the large window pane there was a shorter piece of Plexiglas which was mounted parallel to the window pane. This smaller panel acted to protect the yellow neon fluorescent tube. I took the measurements of the design using a piece of paper that I found near the table.

[0022] I then went home and designed up a mounting bracket with my 3D computer software. I had already installed the stereolithography software that converts the design to the \*.STL file format. How stereolithography works is that it slices the design into many thin horizontal sections. The machine has a platform which is mounted in a bath of liquid polymer. An ultraviolet laser, mounted on an xy-table, then traces out the slice. Because the liquid polymer is light sensitive, it polymerizes immediately into solid plastic. Then the platform is lowered a few thousandths of an inch and the second slice is added. This process eventually builds up the complete 3D part. Using the Internet, the \*.STL file is sent by e-mail to the stereolithography service provider who returns the part overnight. So the next day I had the piece from which I made a plastic mold and several additional pieces for mounting the Plexiglas bracket on a full sheet of Plexiglas that I ordered locally. It never occurred to me to measure the angles, so after I got the index of refraction for Plexiglas, I measured the incident angle and it turned out to be  $61^\circ$ . So then I realized that the spiritual eye

was being diffracted across these two Plexiglas plates which connected it to the tetrahedral geometry of subspace. Because subspace is the foundation of space, this created a much more efficient route for remote viewing. The result is that this invention has allowed me to make contact with 430 alien civilizations. Since then I have been awarded the Aphysics prize for my work in the invention and elaboration of the tetrahedron diagram of which there are now over 4000 graphs. The scientific discoveries contained in the diagram are (1) the electron and proton are one and same particle, (2) the existence of hyperspace, (3) how mass can be taken out of dimension, (4) cosmology determines the elementary particles, (4) all the physics constants and the tetrahedral geometry are contained in the two  $360^\circ$  circles of the infinity symbol and (5) all the physics constants are determined geometrically and projected from a subspace manifold into our dimension. For my work in Revelations, I was awarded four beautiful galloping riderless white horses of the Apocalypse.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

[0023] **FIG. 1.** Remote viewing the top of a palm tree containing several coconuts.

[0024] **FIG. 2.** Remote viewing three soldiers running across a wooden bridge.

[0025] **FIG. 3.** Remote viewing computer building that soldiers were guarding.

[0026] **FIG. 4.** Spiritual eye of human aura.

[0027] **FIG. 5.** Tetrahedron.

[0028] **FIG. 6.** Tetrahedron circumscribed by sphere.

[0029] **FIG. 7.** Caribbean volcanic island vortex.

[0030] **FIG. 8.** Giant Red Spot on Jupiter.

[0031] **FIG. 9.** Olympus Mons volcano on Mars.

[0032] **FIG. 10.** Snell's Law of Refraction.

[0033] **FIG. 11.** Perspective view of remote viewing station.

[0034] **FIG. 12.** Wedge-shaped spacers for diffraction panel.

[0035] **FIG. 13.** Remote viewing angle.

[0036] **FIG. 14.** A remote viewing session taking place on a planet located 90,000 light years from earth on the other side of the galaxy showing His Highness signing with his left hand the document that allows his planet to become a member of the Pleiadian Federation.

#### DETAILED DESCRIPTION OF THE INVENTION

[0037] 1. Referring to **FIG. 11**, the remote viewing station is a rectangular box wooden frame (A) on which is mounted on one side a large sheet of Plexiglas (B). The diffraction panel (C), made of a shorter length of Plexiglas, is mounted with acrylic glue on the Plexiglas sheet using clear polyoptic molded plastic spacers (D).

[0038] Referring to **FIG. 12**, the wedge-shaped spacers (D) hold the diffraction panel (C) to the sheet of Plexiglas (B). The angle of the wedge is  $30^\circ$  which makes the incident angle  $60^\circ$  to the normal.

[0039] Referring to the top view perspective **FIG. 13**, sitting on the wide bench, the remote viewer can adjust his sight along the wedge for proper alignment at an angle of  $60^\circ$ . Due to the 1.50 index of refraction of Plexiglas, the spiritual eye is diffracted across the edge of the first panel and then refracted across the second panel at the tetrahedral angle of  $35.26^\circ$ .

[0040] Referring to **FIG. 14**, the remote viewing image is seen superimposed on the large sheet of Plexiglas which acts as the viewing screen.

I claim:

1. A remote viewing station comprising:

- (a) a rectangular box frame made of wood having a length of six feet, a width of four feet and a height of six feet;
- (b) a large sheet of quarter inch Plexiglas, having an index of refraction of 1.50, mounted on the right side of item (1a);
- (c) several wedge-shaped clear plastic spacers, three inches in width and eight and a half inches in length,

having a wedge angle of  $30^\circ$  that are mounted on the interior right side of item (1b);

- (d) a shorter sheet of quarter inch Plexiglas, having a length of one and a half feet, mounted on item (1c) parallel to item (1b);
- (e) a wide bench on which the remote viewer sits so that the remote viewer can align his sight along the wedge angle of item (1c);

2. A remote viewing amplifier that:

- (a) diffracts the spiritual eye of the remote viewer across the edge of item (1d) at an incident angle of  $60^\circ$  to the normal;
- (b) refracts the spiritual eye at  $35.26^\circ$  to the normal due to the refractive index of item (1a) according to Snell's Law of Refraction; and
- (c) aligns the spiritual eye with the tetrahedral geometry of subspace due to the diffraction/refraction combination of item (2a) and (2b).

\* \* \* \* \*



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(43) **Pub. Date: Aug. 26, 2004**

(54) **HYPERSPACE ENERGY GENERATOR**

(22) **Filed: Feb. 21, 2003**

(76) **Inventor: John Quincy St. Clair, San Juan, PR**  
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**Publication Classification**

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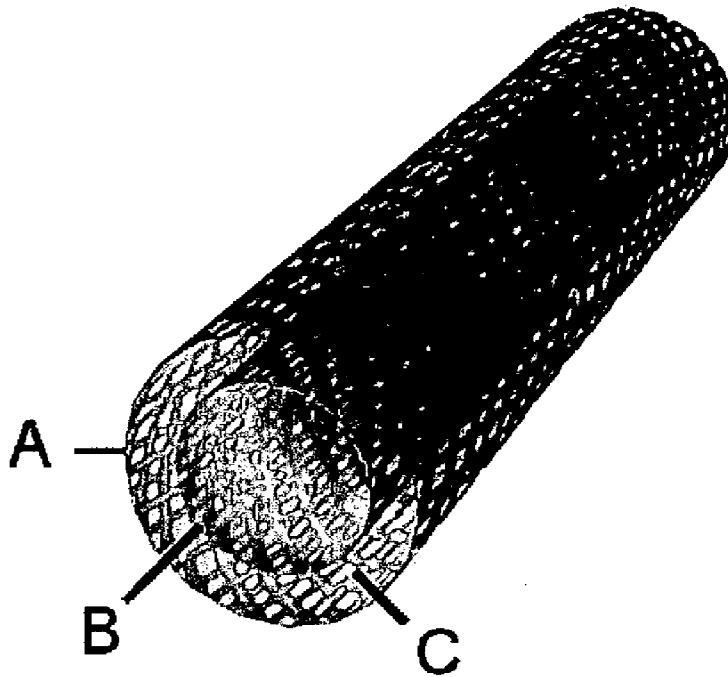
(51) **Int. Cl.<sup>7</sup> ..... H01P 3/06**

(52) **U.S. Cl. .... 333/243**

(57) **ABSTRACT**

This invention is a braided gold wire coaxial cable of micron size which generates hyperspace energy by coupling to the tetrahedral geometry of subspace, dimension and the Planck mass.

(21) **Appl. No.: 10/372,556**



**Figure 1**

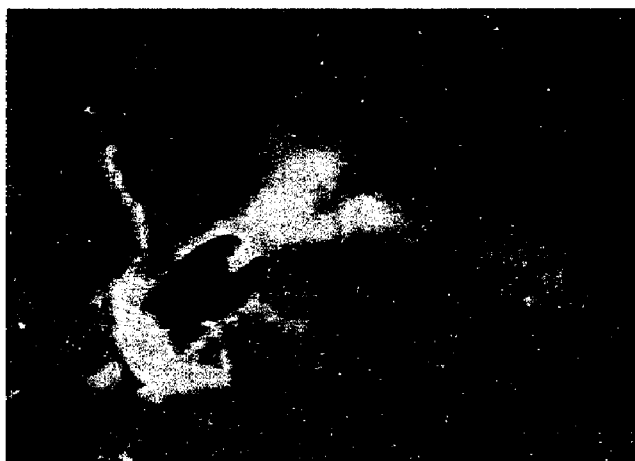




Figure 2

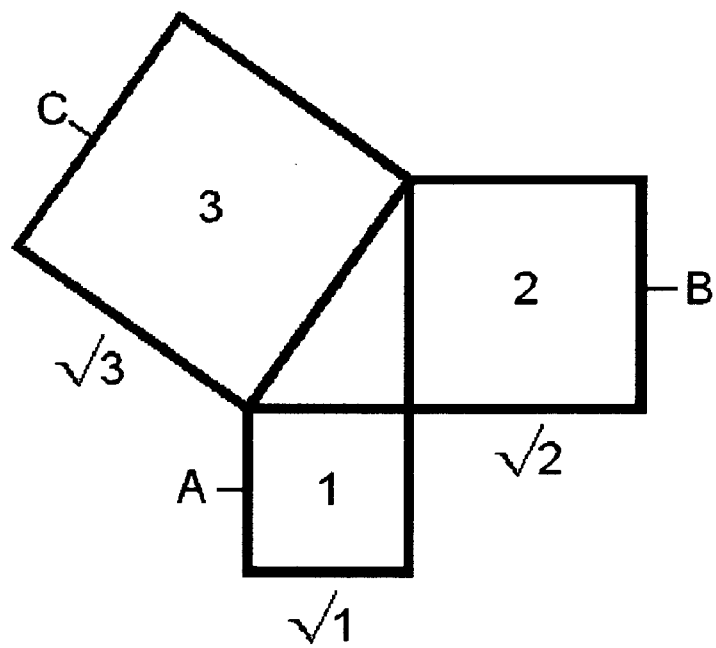
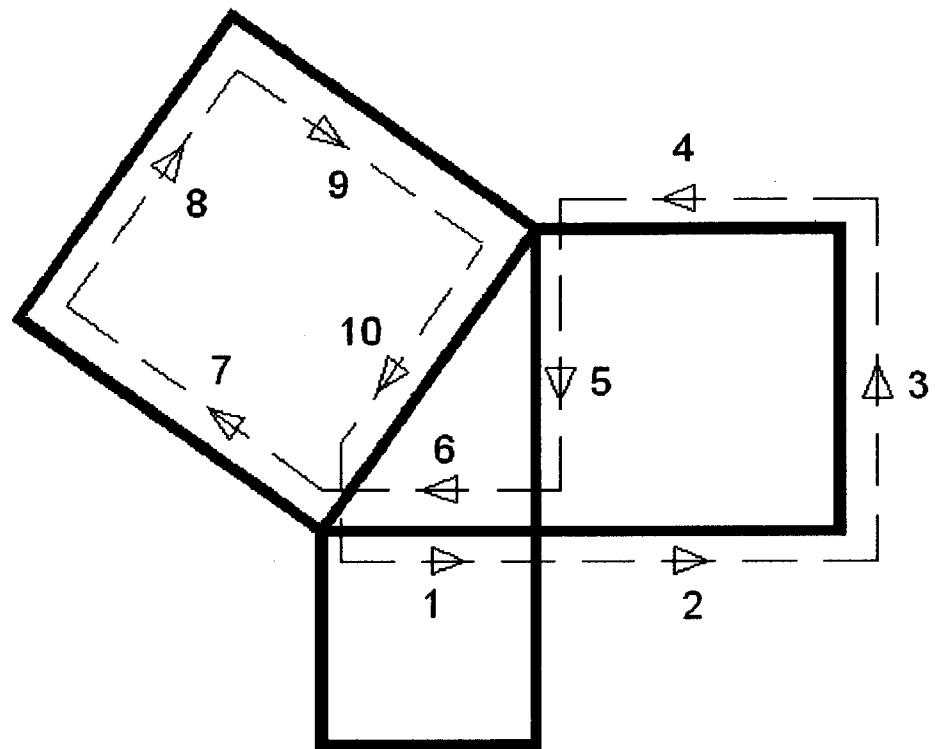
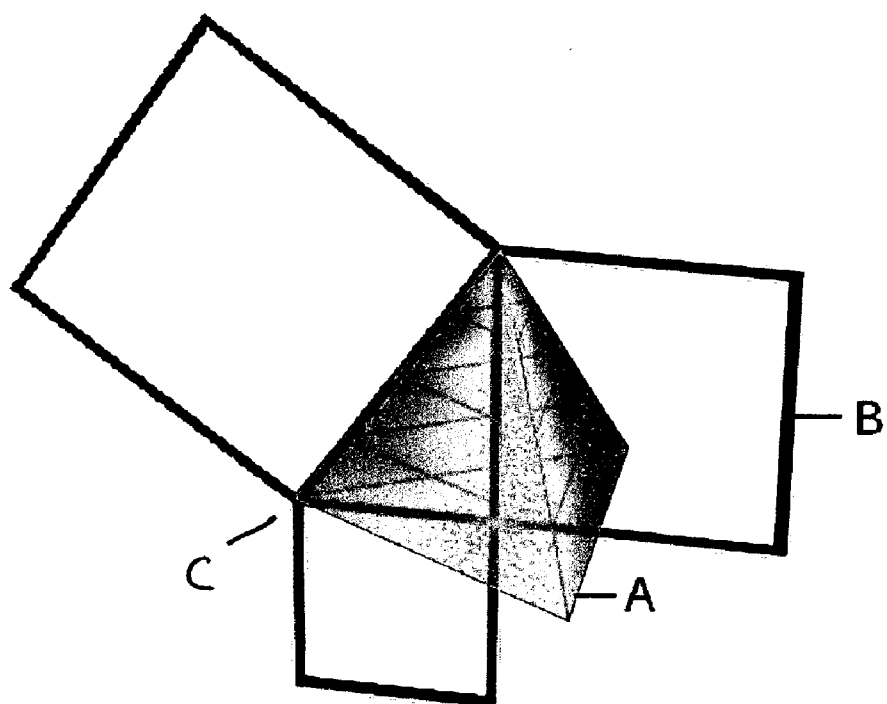


Figure 3



**Figure 4**



**Figure 5**

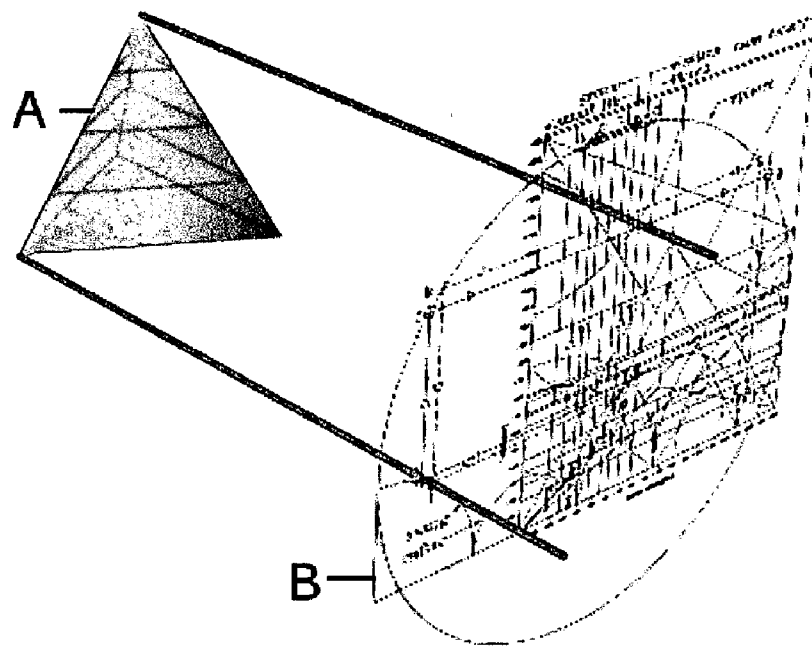


Figure 6

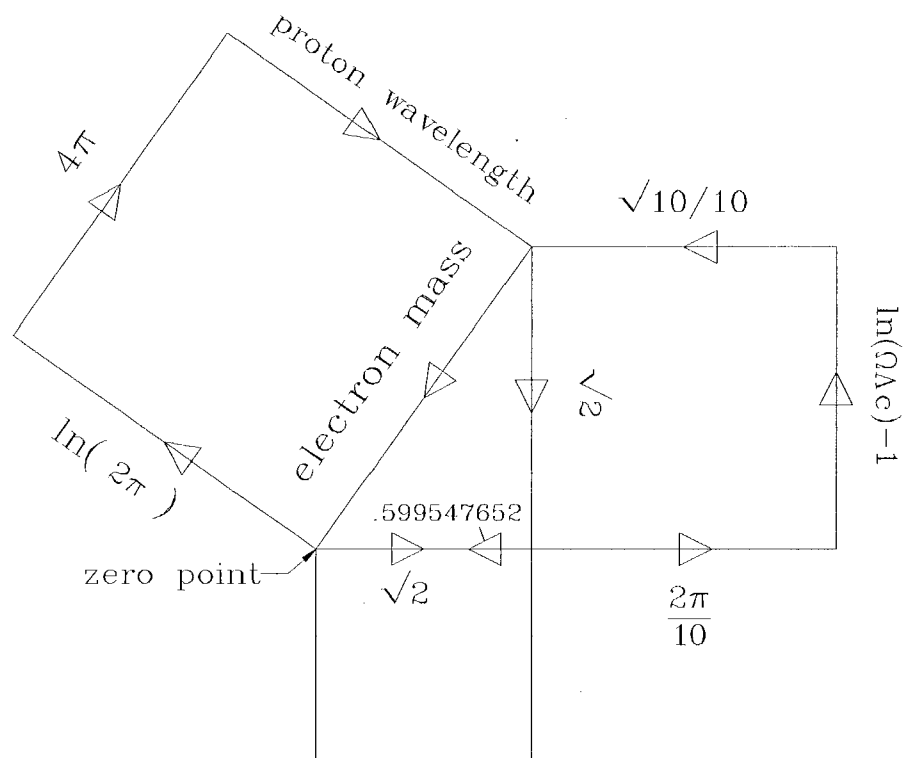


Figure 7

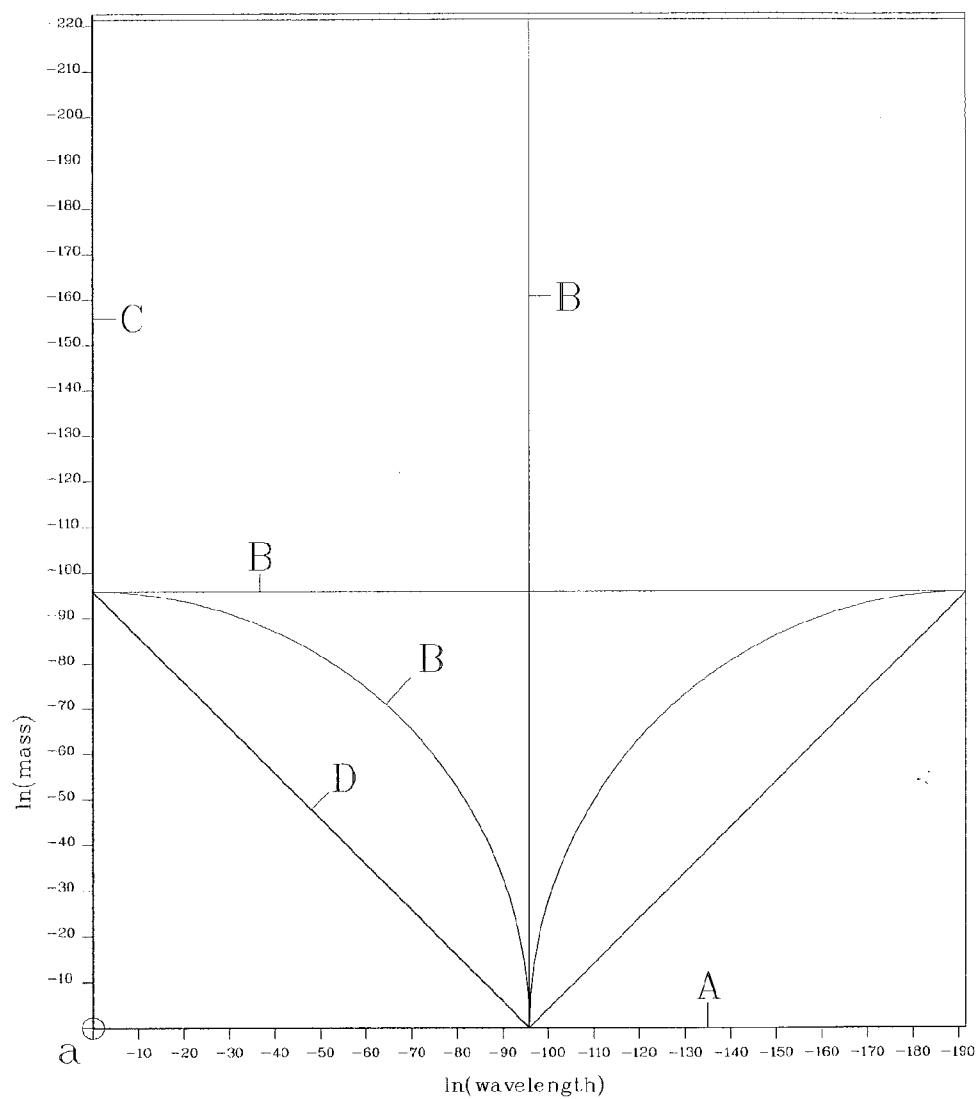
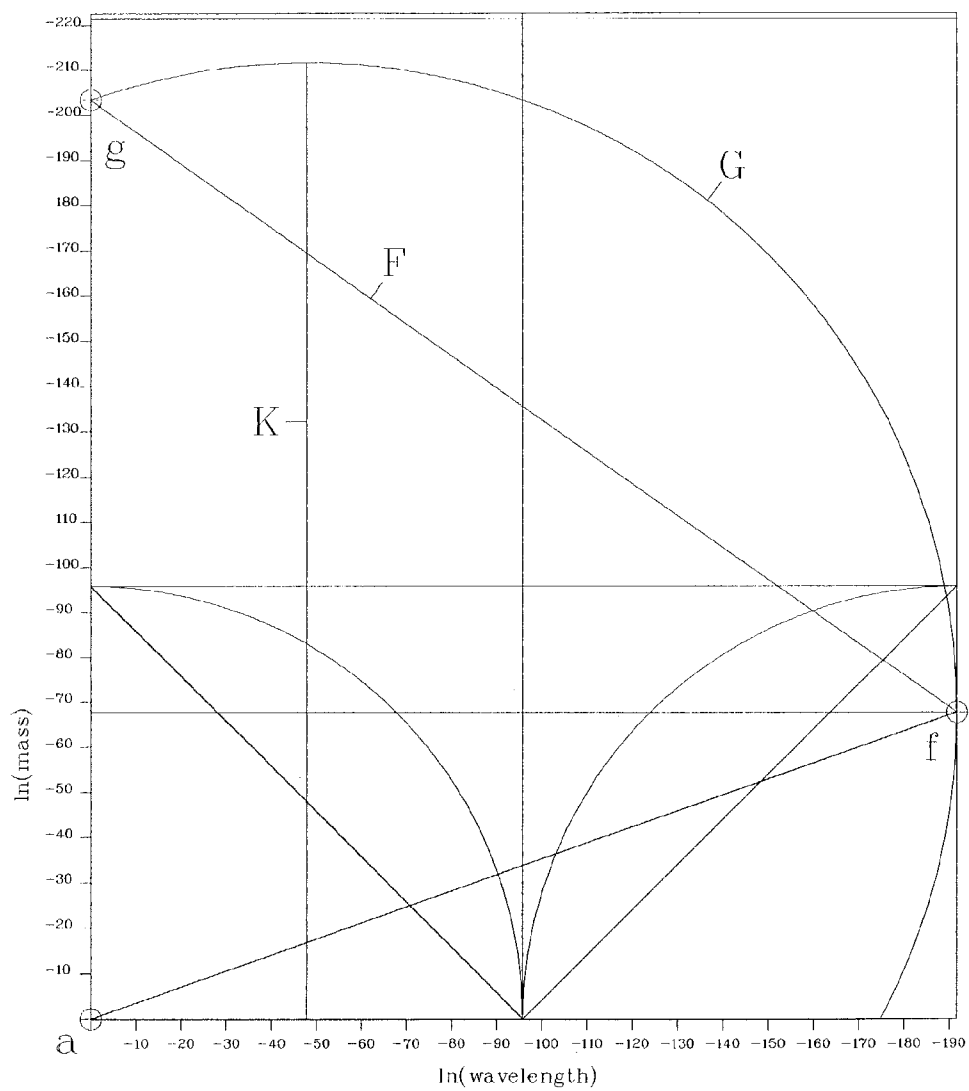


Figure 8



**Figure 9**

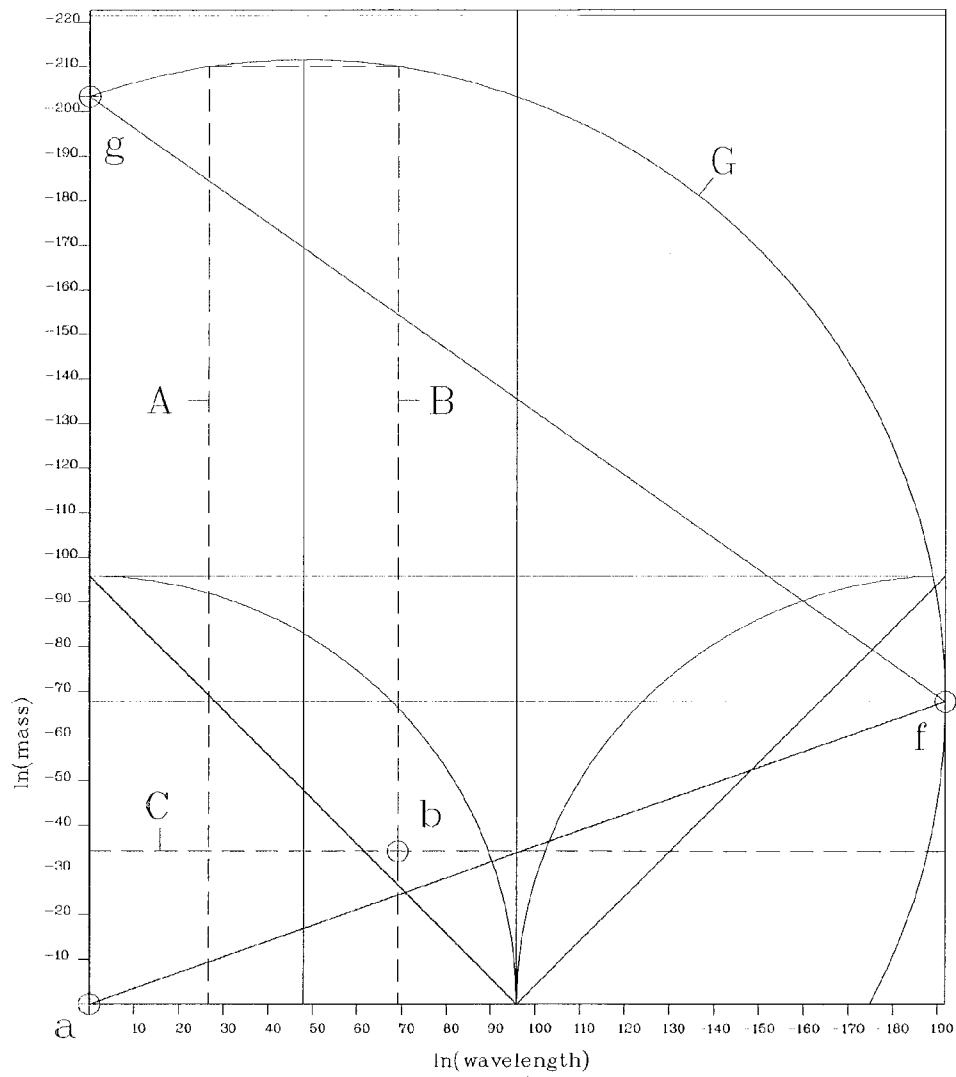




Figure 10

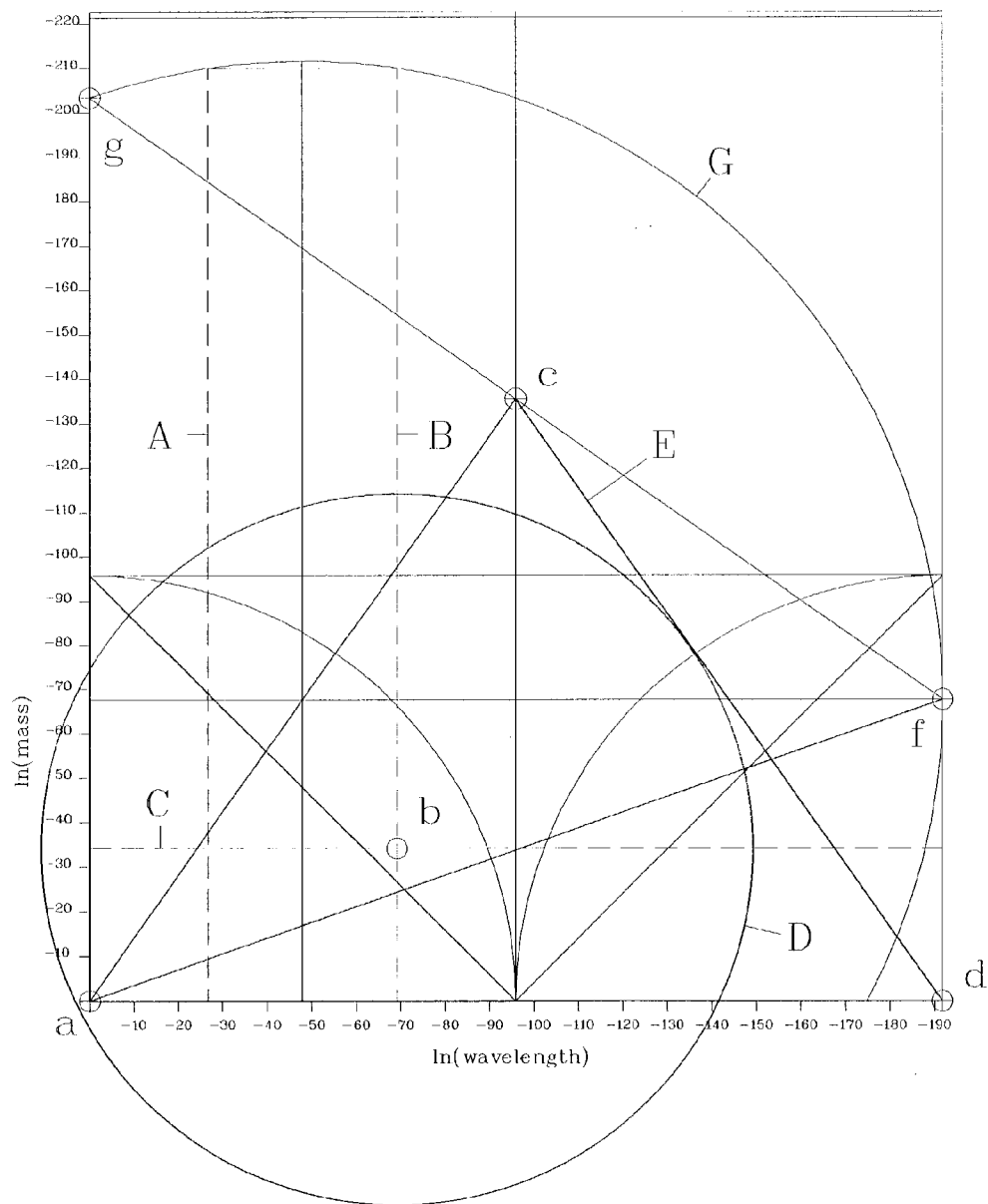
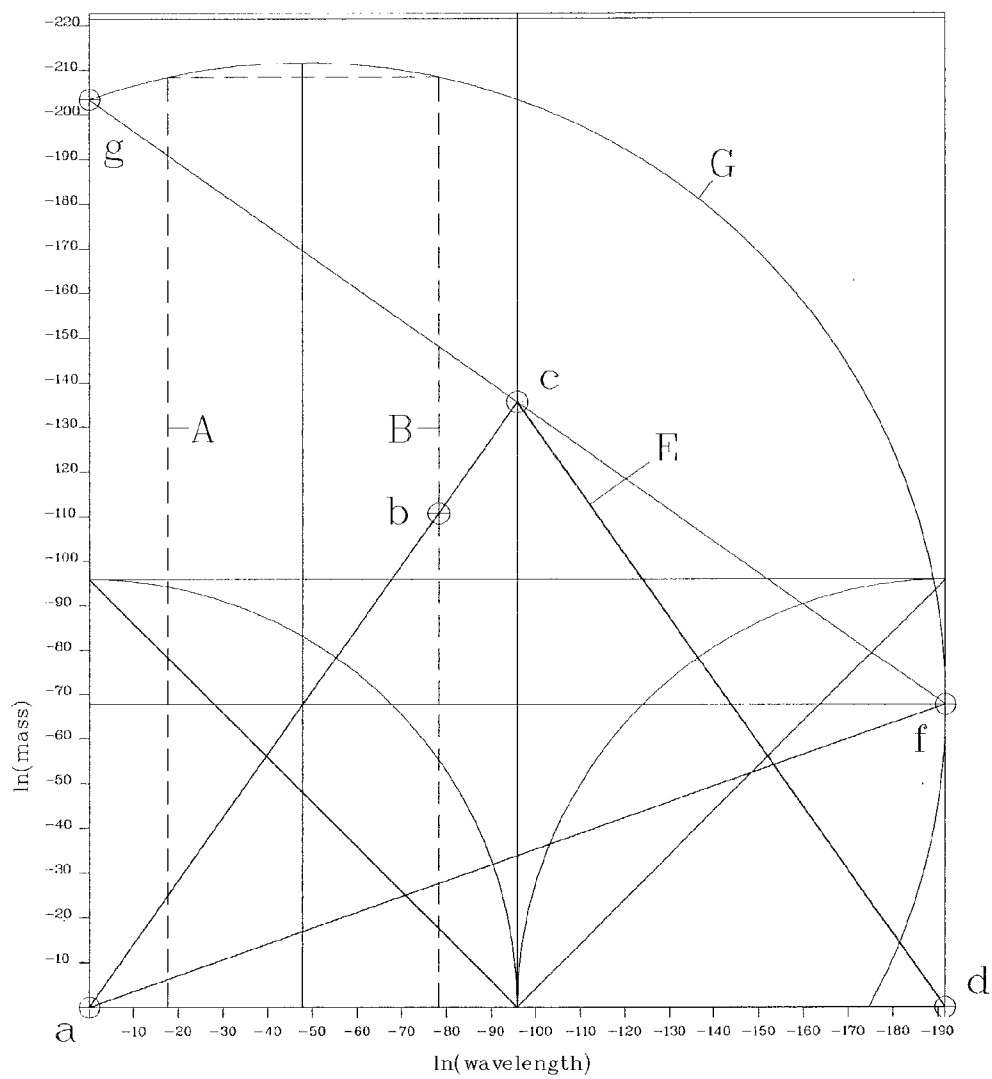


Figure 11



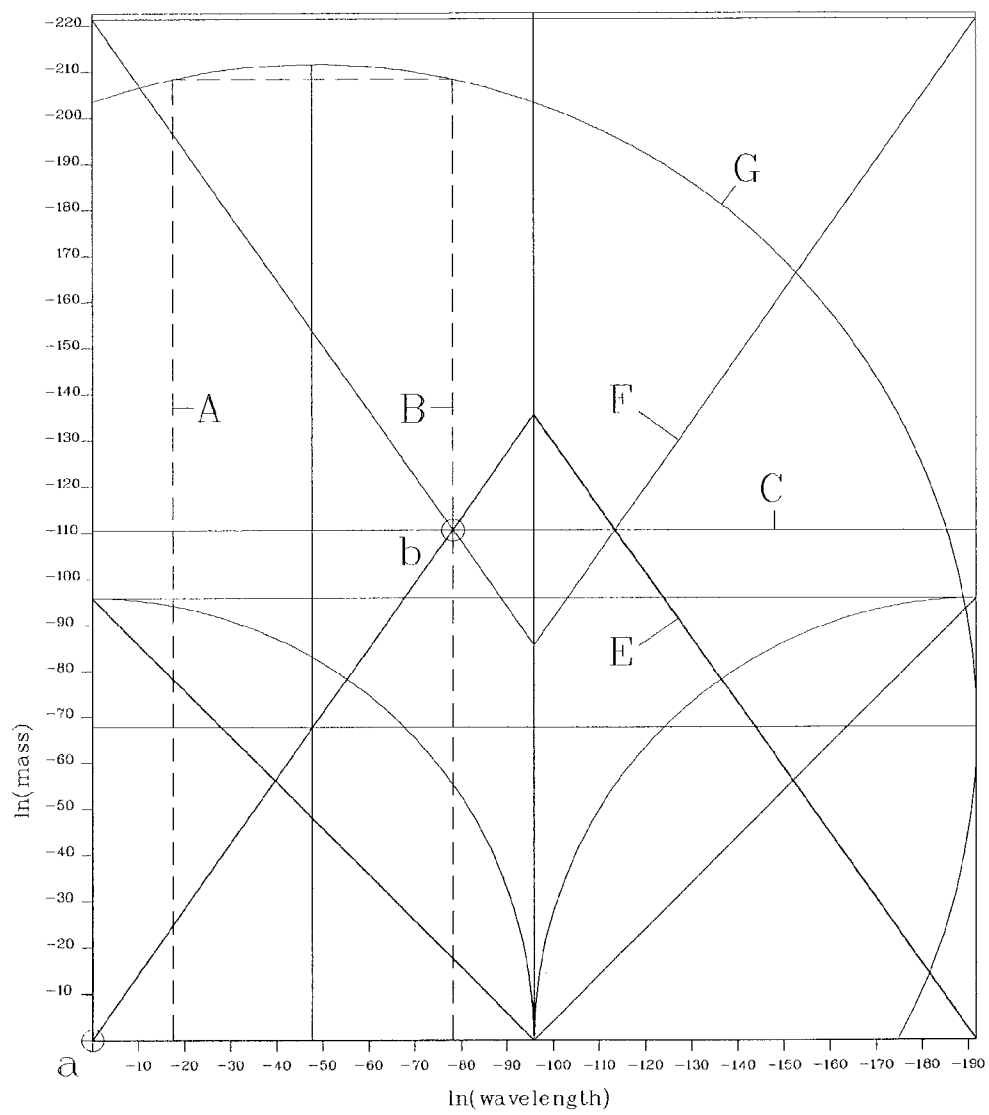


Figure 13

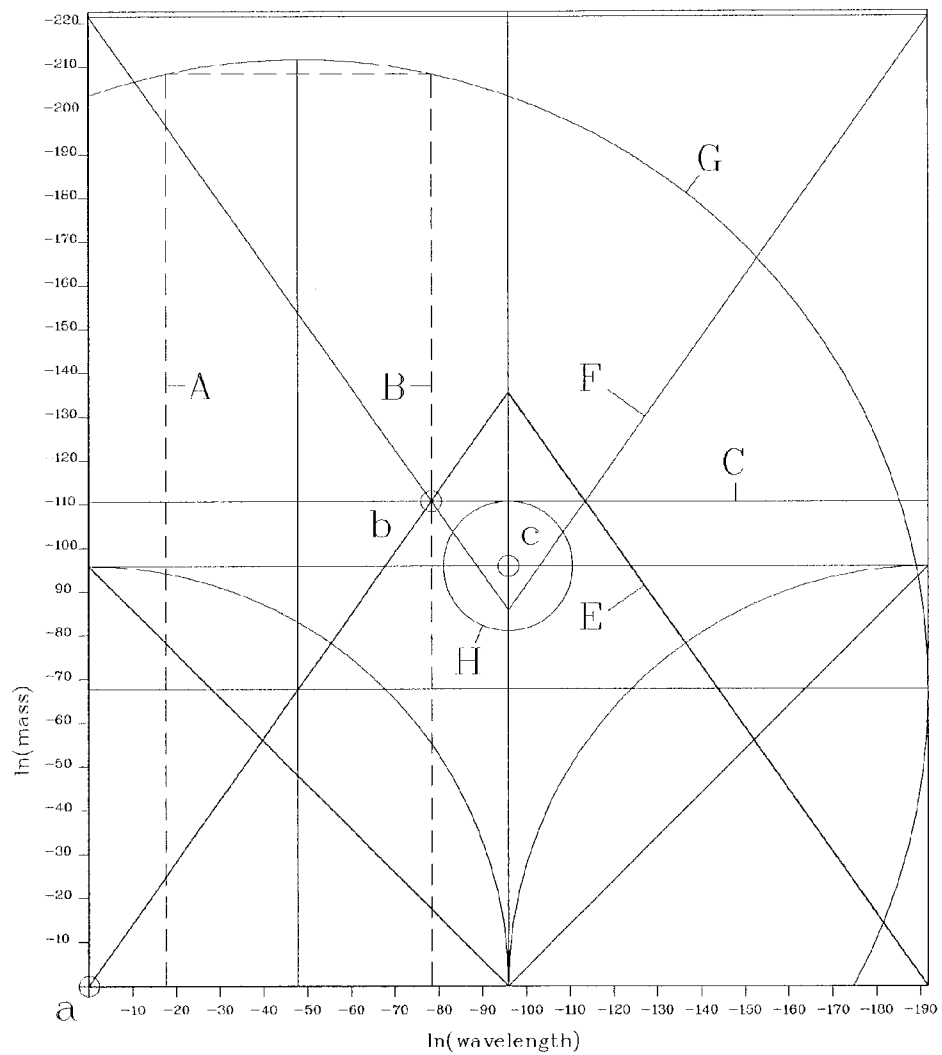
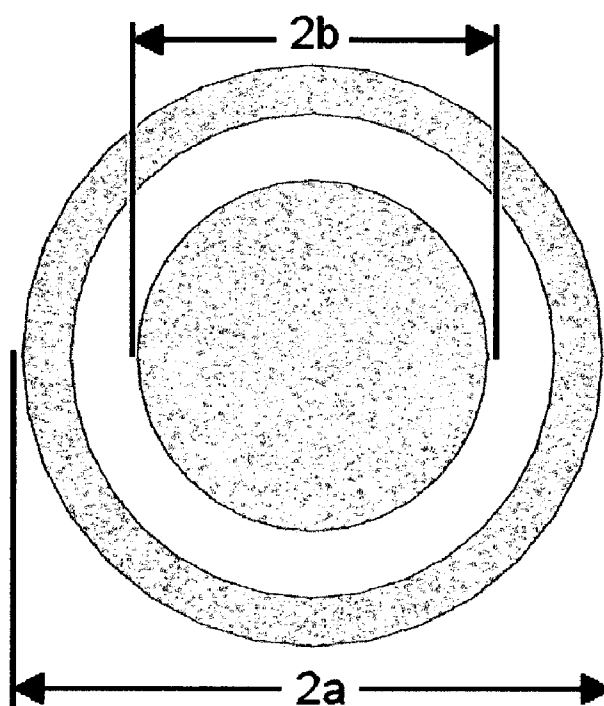
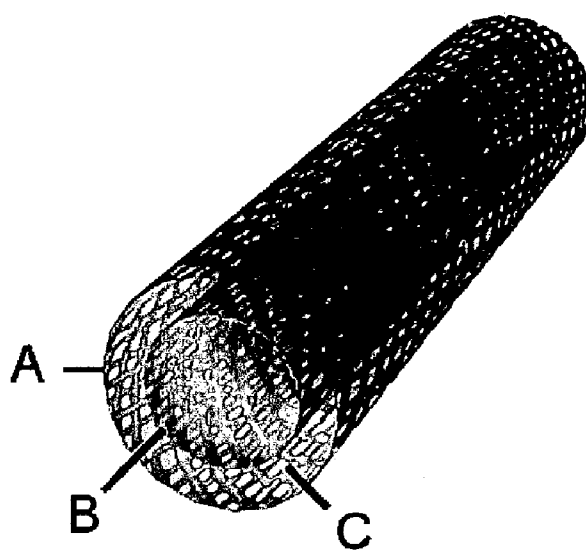


Figure 14



**Figure 15**



## HYPERSPACE ENERGY GENERATOR

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention is a braided gold wire coaxial cable of micron size which generates hyperspace energy.

### BACKGROUND OF THE INVENTION

[0002] Electrical experiments with micron-sized braided gold wire coaxial cable show that it is capable of generating substantial amounts of hyperspace energy. Referring to the electron microscope photograph shown in **FIG. 1**, the white mist emanating from the cable is low-density hyperspace energy that is flowing in from a co-dimension of our universe. The dimensions of the cable are of such a particular size as to couple the cable to the tetrahedral geometry of subspace, the dimension of space, the Planck mass and the linear inductance of the universe.

[0003] According to physicist Dr. Edward Witten of Princeton University, space has twenty-four dimensions, of which ten dimensions are non-redundant. Imagine taking a path around the Pythagorean triangle, as known as the planar tetrahedron, with sides equal to  $\{\sqrt{1}, \sqrt{2}, \sqrt{3}\}$  as shown in **FIG. 2**. There are three squares denoted the one-square (A), the two-square (B) and the three-square (C). Each square has four sides. The edge of each square can be traversed in two directions. Thus the total number of dimensions is

$$\dim_{\text{total}} = 2 \cdot (4 + 4 + 4) = 24$$

[0004] Referring to **FIG. 3**, there is a path starting at the corner of the triangle, along the one-square (1), around the two-square (2,3,4,5), back along the one-square (6), around the three-square (7,8,9,10) and back to the corner of the triangle. The numbering of the edges shows that there are ten edges. Because the path is traversed in only one direction, the number of reduced dimensions is

$$\dim_{\text{reduced}} = 1 \cdot (10) = 10$$

[0005] Referring to **FIG. 4**, the planar tetrahedron (B) forms one edge of the three-dimensional tetrahedron (A). Rotating the planar tetrahedron  $\pm 120^\circ$  produces the other two edges. The tetrahedron has four faces which are equilateral triangles. The ten dimensional path starts and ends at (C), the corner of the tetrahedron known as the zero point.

[0006] Referring to **FIG. 5**, the projection of the 3D tetrahedron (A) onto a plane is called the tetrahedron diagram (B) which is the main diagram of the new geometrical physics known as  $\Delta$ physics. All the constants of physics can be derived geometrically from the tetrahedron diagram and its associated planar tetrahedron. An example of this is shown in **FIG. 6** where the edges are given specific constants related to tetrahedral geometry, dimension, curvature, and the mass and wavelength of the elementary particles such as the electron and proton. The ten dimensional path includes the following constants

[0007] a. electron wavelength

[0008] b. proton wavelength

[0009] c.  $47\pi$  The solid angle of the sphere. The tetrahedron is circumscribed by a sphere.

[0010] d.  $\ln(2\pi)$  The natural log of the curvature. The subspace geometry is a logarithmic manifold. The

tetrahedron diagram plots the logarithm of mass versus the logarithm of wavelength.

[0011] e. 0.599547652 A constant related to fractal dimension and the speed of light factor 2.99792458.

[0012] f.  $\sqrt{2}$  The edge of the two-square.

[0013] g.  $\sqrt{10}/10$  The square root of ten dimensions per 10 dimensions.

[0014] h.  $\ln(\Omega\Lambda c) - 1$  The natural log of the momentum of space less one.

[0015] i.

$$\frac{2\pi}{10}$$

[0016] The curvature of space per 10 dimensions.

[0017] j.  $\sqrt{2}$  The edge of the two-square.

[0018] The length of each edge is multiplied by the constant assigned to that edge. The ten edges have the order of  $\{\sqrt{1}, \sqrt{2}, \sqrt{2}, \sqrt{2}, \sqrt{1}, \sqrt{3}, \sqrt{3}, \sqrt{3}, \sqrt{3}\}$ . What subspace geometry does is to multiply the edge length, such as  $\sqrt{1}$ , times the square root of two  $\sqrt{2}$ . Then it takes the square root of that number and multiplies it by the next edge, which is  $\sqrt{2}$ , times the curvature per 10 dimensions

$$\frac{2\pi}{10}$$

[0019] It then takes the square root of that number and so on. In equation form, this looks like the following calculation

$$\sqrt{3a\sqrt{3b\sqrt{3c\sqrt{3d\sqrt{1e\sqrt{2f\sqrt{2g\sqrt{2h\sqrt{2i\sqrt{1j}}}}}}}}} = 80.1104395$$

[0020] where the letters correspond to those in the list of constants. The square root sum total is equal to the Planck scale  $\Lambda$  which is the bottom dimensional limit of the universe. The sum of the ten constants per a speed of light circumference is equal to unity

$$\sum_{n=10} s_n = \frac{1.000000000}{2\pi \ln(c)}$$

[0021] where the log of the speed of light is

$$\ln(c) = \ln(299792458) = 19.51860099$$

[0022] and multiplying by  $2\pi$  is the circumference of a circle with a radius equal to the speed of light.

[0023] Referring to **FIG. 7**, the tetrahedron diagram plots the natural logarithm of mass on the vertical axis (C) versus the natural logarithm of wavelength on the horizontal axis (A). The reason for this is that the mass of the electron times its wavelength is equal to the mass of the proton times its wavelength which in turn is equal to Planck's constant  $h$  divided by the speed of light, known as the base constant (B). If two numbers multiply, they sum in logarithms. In subspace geometry, the sum of the logarithm of the mass of the electron plus the logarithm of the wavelength is equal to the logarithm of the base constant which has a value of  $-95.91546344$ .

$$\ln(m_{\text{electron}}) + \ln(\lambda_{\text{electron}}) = \ln\left(\frac{h}{c}\right) = -95.91546344$$

[0024] What this means is that the mass and wavelength slide on a  $45^\circ$  base line (D) which has end points on the vertical and horizontal axes equal to the base constant.

[0025] Referring to **FIG. 8**, a line (af) drawn from the origin at the tetrahedral angle of  $19.47122063$ , equal to the  $\arcsin(1/3)$ , creates a tetrahedron (F) along path (afg). This tetrahedron is circumscribed by a sphere (G) with sphere diameter (K).

[0026] The Planck scale path calculation showed that the electron mass and the proton wavelength were the last two edges. The electron mass has a value of

$$\ln(m_e) = -69.17083217$$

[0027] and the electron wavelength has a value of

$$\ln(\lambda_e) = -26.74463127$$

[0028] Referring to **FIG. 9**, the electron wavelength (A) is plotted as a vertical line on the tetrahedron diagram. The wavelength reflects off the circumscribing sphere (G), and returns as the electron mass (B). So the diagram incorporates the concepts of both classical physics (point mass particles) and quantum mechanics (wave particles).

[0029] The proton wavelength has a value of

$$\ln(\lambda_p) = -34.26005901$$

[0030] The proton wavelength (C) is plotted as a horizontal line in order to get the intersection (b) with the electron mass.

[0031] Referring to **FIG. 10**, a circle (D) with a radius equal to the Planck scale is drawn centered (b) on the intersection of the electron mass with the proton wavelength, which are the last two edges of the Planck scale calculation. A line (ac) from the origin to the intersection of the base constant with the rotated tetrahedron creates the vertical tetrahedron (acd). As can be seen, the Planck scale is tangent to the tetrahedron on side (cd). This tetrahedron is the projection of the 3D tetrahedron shown before in **FIG. 5**. What this means is that the tetrahedral geometry of subspace determines the bottom limit of our universe. And this bottom limit, called the Planck scale, contains within itself the mass and wavelength of the elementary particles, curvature, dimension and planar tetrahedral geometry. Tetrahedron diagram tet0565 shows that the electron and proton are one and the same particle because the electron path rotates counterclockwise around the curvature and then

returns clockwise as the proton path. This path occurs moving through space and hyperspace. Because the single particle enters our universe from hyperspace at two different positions, we see it as two distinct particles. Thus the tetrahedron diagram shows that hyperspace exists.

[0032] The speed of light is equal to the inverse of the square root of the permeability  $\mu$  of space times the permittivity  $\epsilon$  of space

$$c = \sqrt{\frac{1}{\mu\epsilon}}$$

[0033] The permeability is linear inductance or inductance per length which you would find in a solenoid for example. The permittivity is linear capacitance or capacitance per length which you find in a capacitor. In an electrical circuit, the inductance and capacitance form a resonant circuit. The resonance frequency can be changed by changing the inductor or capacitor. In a similar manner, the speed of light is not constant, but can be lowered by increasing the permittivity. Hyperspace energy has a high permittivity and therefore a low speed of light. This low speed of light gives hyperspace energy a luminescent quality which is seen as a white mist (**FIG. 1**).

[0034] From Einstein's General Theory of Relativity, the stress pressure  $T$  on spacetime is proportion to the square of the ratio of the electric field  $E$  to the speed of light  $c$ .

$$T = \left(\frac{E}{c}\right)^2$$

[0035] Thus substantially lowering the speed of light creates an enormous spacetime pressure which can be used to generate the lift force on electromagnetic field propulsion vehicles. Furthermore, the electric field is subject to the Lorentz transformation

$$E = \frac{E_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$

[0036] The electric field  $E_0$  moving in a frame velocity of  $v$ , can quickly attain relativistic proportions because the speed of light could be 1 meter per second, rather than the enormous value in our universe of 299792458 meters per second. Thus one would like to permeate the hull of the electromagnetic field propulsion vehicle with this hyperspace energy in order to increase the electric field and hence the spacetime curvature around the hull which produces the enormous lift force on the vehicle. The method of bringing in this hyperspace energy is to use braided gold wire coaxial cable which is coupled to the geometry of subspace. The subspace geometry is contained in the  $\Delta$ physics tetrahedron diagram.

[0037] Just as space has a linear inductance and linear capacitance, it also has a linear mass  $\Omega$  or mass per meter.



Physicist Dr. John A. Wheeler of Princeton likes to invert this and call it “mom” for meter of mass. The Planck mass is equal to the Planck scale  $\Lambda$  times the linear mass  $\Omega$

$$\ln(m_{\text{Planck}}) = \ln(\Omega\Lambda) = -17.64290101$$

[0038] Planck’s constant  $h$  is equal to  $2\pi$  times the Planck scale squared times the linear mass  $\Omega$  times the speed of light  $c$ .

$$h = 2\pi\Lambda^2 \Omega c = 2\pi\Lambda(\Omega\Lambda)c$$

[0039] which shows that Planck’s constant is actually the circumference of a circle of radius Planck scale times the Planck mass times the speed of light. The base constant is therefore

$$\text{base} = \frac{h}{c} = \frac{2\pi\Lambda(\Omega\Lambda)c}{c} = (2\pi\Lambda)(\Omega\Lambda) = -95.91546344$$

[0040] which is an area, known as the Planck box, bounded by the Planck wavelength ( $2\pi\Lambda$ ) and the Planck mass. Everything outside the Planck box is hyperspace. Everything inside the Planck box is our universe. Thus the boundary between space and hyperspace is the Planck wavelength and the Planck mass. In logarithms, notice that the Planck mass and Planck wavelength, just like the electron and proton, sum to the base constant.

[0041] Referring to FIG. 11, the Planck mass (A) and the Planck wavelength (B) are plotted on the diagram and reflected off the sphere. The Planck wavelength intersects the tetrahedron at (b) which is the boundary between space and hyperspace known as the centerline of the diagram. The centerline has a value equal to the base times the square root of  $\frac{4}{3}$ .

$$\text{centerline} = \sqrt{\frac{4}{3}} \text{base} = -110.7536373$$

[0042] Referring to FIG. 12, the centerline (C) is drawn on the diagram and the tetrahedron (E) is mirrored (F) across the centerline to indicate the co-dimensions of hyperspace.

[0043] Referring to FIG. 13, a circle (H), centered at the base at the base (c), tangent to the centerline (C), has a radius equal to base times the square root of  $\frac{4}{3}$  less one

$$R = \left( \sqrt{\frac{4}{3}} - 1 \right) \text{base} = 14.83817383$$

[0044] This is the length that has to be traversed in order to cross over the centerline from the base constant of our universe to the co-dimension of hyperspace. Furthermore, the Planck mass, which is the other boundary, has to be crossed in order to get to either axis as seen by the length between the vertical axis and line (A). It can be looked at also as the length needed to go from the Planck wavelength (B) to the tangent point of circle (H) in order to reach the center of the mirror tetrahedrons.

## SUMMARY OF THE INVENTION

[0045] This invention is a braided gold wire coaxial cable of micron size that is coupled to the subspace geometry of the universe for the purpose of bringing in low-density hyperspace energy into our universe from the co-dimensions of hyperspace. The dimensions of the coaxial cable are of such particular size as to enable it to couple to the ten dimensions of space, the 3:1 geometrical ratio of the tetrahedron, the coaxial wave function based on the logarithm of the ratio of the outer radius to the inner radius of the cable, the length between the base constant of our universe and the centerline between mirror tetrahedrons, and the geometrical relationship between the Planck mass and the linear inductance of the cable.

[0046] Referring to FIG. 14, the coaxial guide has an outer braided conductor (A) and an inner braided conductor (B) in which the outer and inner conductors are at radii  $a$  and  $b$  respectively. The linear inductance  $L$  of the cable is equal to the natural logarithm of the ratio of the radii times the permeability  $\mu$  of space divided by the curvature  $2\pi$

$$L = \ln\left(\frac{a}{b}\right) \frac{\mu}{2\pi}$$

[0047] It can be shown that the ratio of the area-to-volume ratio of the tetrahedron to the area-to-volume ratio of its circumscribing sphere is 3:1. It is also the ratio of the area of the three-square to the area of the one-square on the planar tetrahedron. It is also the tetrahedral angle  $\arcsin(\frac{1}{3})$  equal to  $19.47122063^\circ$ . It is also a maximum work condition between the velocity ratio of a fluid stream and a moving vane such as in turbomachinery. So the first constraint on the radii is

$$\exp\left(\ln\left(\frac{a}{b}\right) + 1\right) \equiv 3$$

[0048] The second constraint is that the radius  $c$  of the circle, equal to the difference between the base constant and the centerline, is related to ten dimensions. The value of the radius projected into our universe is

$$c = \left( \sqrt{\frac{4}{3}} - 1 \right) \text{base} = .3596358547 \cdot \text{microns}$$

[0049] and the dimensional constraint is

$$\left[ \ln(c) + \ln\left(\frac{1}{a}\right) \right]^2 = 10$$

[0050] The coaxial wave function constraint is

$$\frac{\ln(a)^2}{2\pi\ln\left(\frac{a}{b}\right)} = \ln(c)^2$$

[0051] The linear inductance of the coaxial cable has to be such that it gets geometrically across the Planck mass which is the second boundary of our Planck box

$$\exp\left(\ln(\Omega\Lambda) - \ln\left(\frac{\ln\left(\frac{a}{b}\right)}{2\pi}\mu\right) + 1\right) \equiv 3$$

[0052] With these four subspace constraints, the outer radius a and inner radius b of the cable are

[0053] a=8.342461828 microns

[0054] b=7.559058141 microns

[0055] so the cable has an outside diameter of roughly 16 to 17 microns.

#### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0056] Not Applicable.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

[0057] **FIG. 1.** Electron microscope photograph of the coaxial cable and hyperspace mist.

[0058] **FIG. 2.** The planar tetrahedron.

[0059] **FIG. 3.** The ten dimensional path around the planar tetrahedron.

[0060] **FIG. 4.** The relationship between the planar tetrahedron and the 3D tetrahedron.

[0061] **FIG. 5.** Projection of the 3D tetrahedron onto a plane to create the tetrahedron diagram.

[0062] **FIG. 6.** Dimension, geometry, curvature and elementary particles that make up the ten dimensional Planck scale path.

[0063] **FIG. 7.** Tetrahedron diagram showing base constant.

[0064] **FIG. 8.** Tetrahedron diagram showing rotated tetrahedron and circumscribing sphere with electron mass and wavelength reflecting off sphere.

[0065] **FIG. 9.** Tetrahedron diagram showing intersection of electron mass with proton wavelength which are components of the Planck scale path.

[0066] **FIG. 10.** Tetrahedron diagram showing Planck scale tangent to tetrahedron.

[0067] **FIG. 11.** Tetrahedron diagram showing Planck mass and Planck wavelength intersecting tetrahedron.

[0068] **FIG. 12.** Tetrahedron diagram showing mirror tetrahedrons across centerline, the boundary between space and hyperspace.

[0069] **FIG. 13.** Tetrahedron diagram showing distance between the base constant and the centerline used to calculate the dimensions of the coaxial cable.

[0070] **FIG. 14.** End view of coaxial cable showing radii a and b used in the subspace geometry constraints in order to couple to hyperspace.

[0071] **FIG. 15.** Perspective view of braided gold wire coaxial cable.

#### DETAILED DESCRIPTION OF THE INVENTION

[0072] 1. Referring to **FIG. 15**, the coaxial cable has a braided gold wire outer conductor (A) and a braided gold wire inner conductor (B) separated by a dielectric (C). The open braiding promotes the conduction of the electromagnetic wave while allowing the hyperspace mist to seep out of the braid and permeate the surrounding material in which it is embedded.

[0073] 2. The radius of the outer conductor a and the radius of the inner conductor b have the following values in order to couple the cable to the tetrahedral geometry of subspace.

[0074] a=8.342461828 microns

[0075] b=7.559058141 microns

[0076] 3. Even though the wire size is very small, the cable can be made in limited lengths using the new nanotechnology and silicon micromotors.

I claim:

1. A coaxial cable which has:

- a) a braided gold wire outer conductor of radius 8.34 microns;
- b) a braided gold wire inner conductor of radius 7.56 microns;
- c) a thin dielectric separator between the two conductors; and
- d) an open weave to allow the hyperspace mist to seep out of the cable and permeate the surrounding material in which the cable is embedded;

2. A specific relationship between the physical dimensions of the coaxial cable, given in items (1a) and (1b), to the following tetrahedral subspace couplings:

- a) the ratio of the area-to-volume ratio of the tetrahedron to the area-to-volume ratio of its circumscribing sphere, equal to 3:1, with a coupling to the natural logarithm of the ratio of the radii of the conductors;
- b) the ratio of the area of the three-square of the planar tetrahedron to the area of the one-square, equal to 3:1, with a coupling to the Planck mass and the linear inductance of the cable;
- b) the distance between the base constant and  $\sqrt{4/3}$  times the base constant, equal to -14.83817383 in natural logarithms, with a coupling to the outer radius of the

conductor, the ten dimensions of space, and the co-dimensions of hyperspace; and

c) the wave function of the coaxial guide given in terms of item (2c), the natural logarithm of the ratio of the

radius of the outer conductor to the radius of the inner conductor, and the curvature  $2\pi$ .

\* \* \* \* \*



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(54) **FULL BODY TELEPORTATION SYSTEM**

(22) Filed: **Sep. 29, 2004**

(76) Inventor: **John Quincy St. Clair**, San Juan, PR  
(US)

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(57) **ABSTRACT**

A pulsed gravitational wave wormhole generator system that teleports a human being through hyperspace from one location to another.

(21) Appl. No.: **10/953,212**

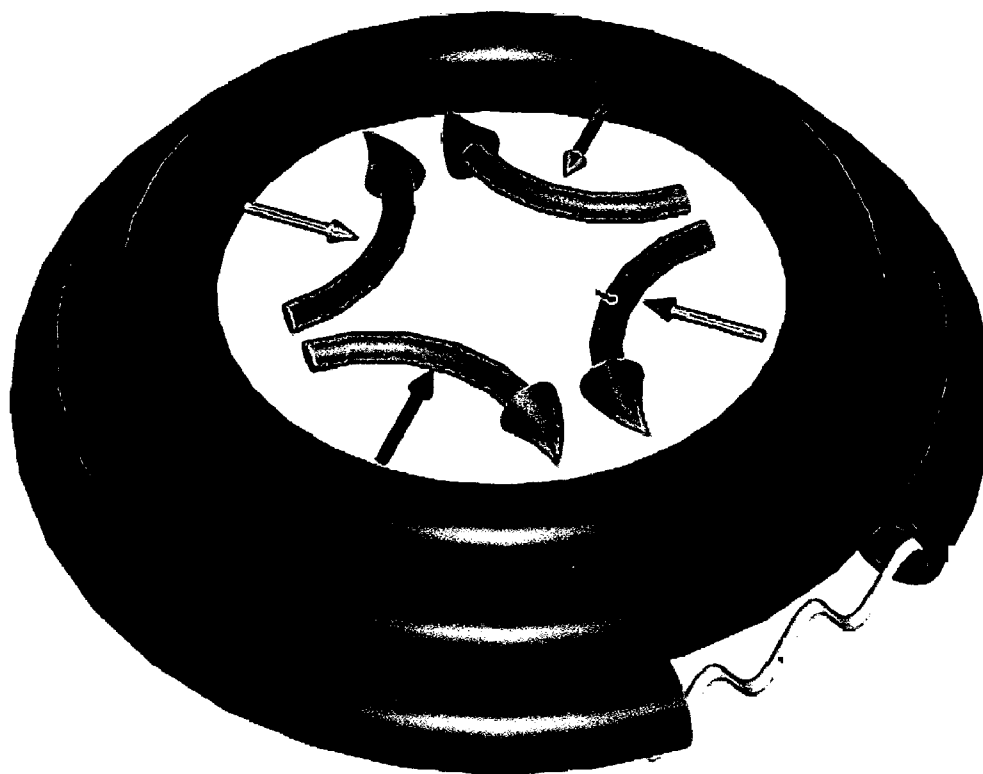




Figure 2

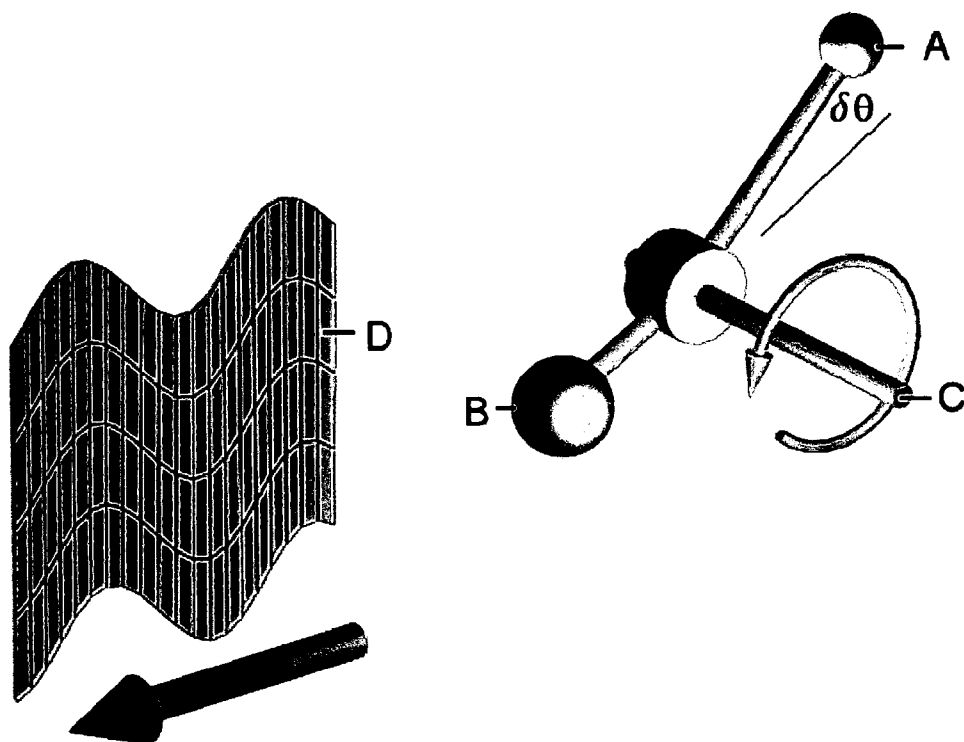
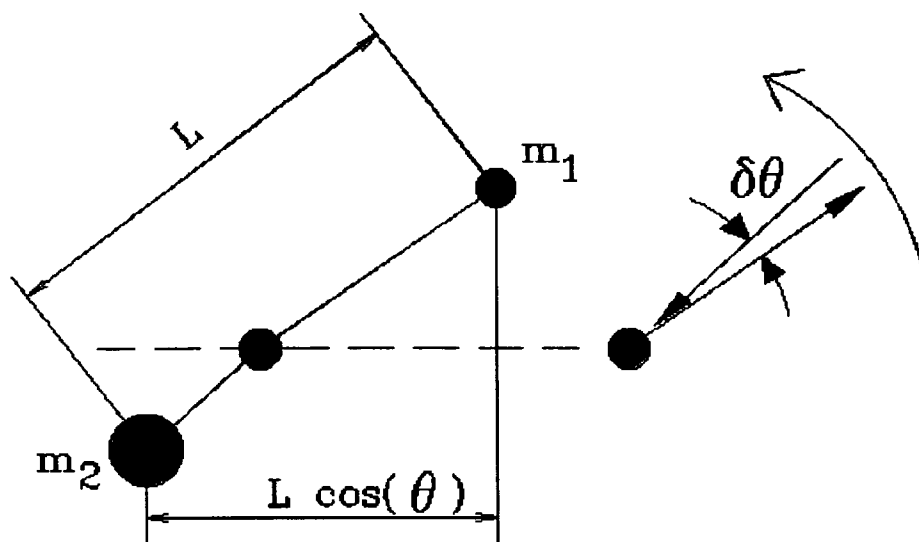
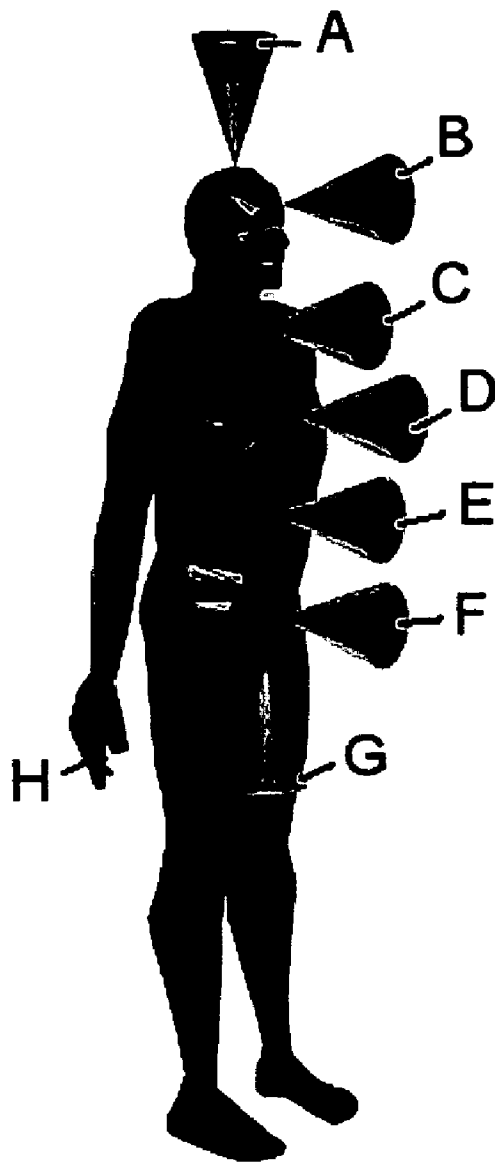


Figure 3



**Figure 4**





**Figure 5**

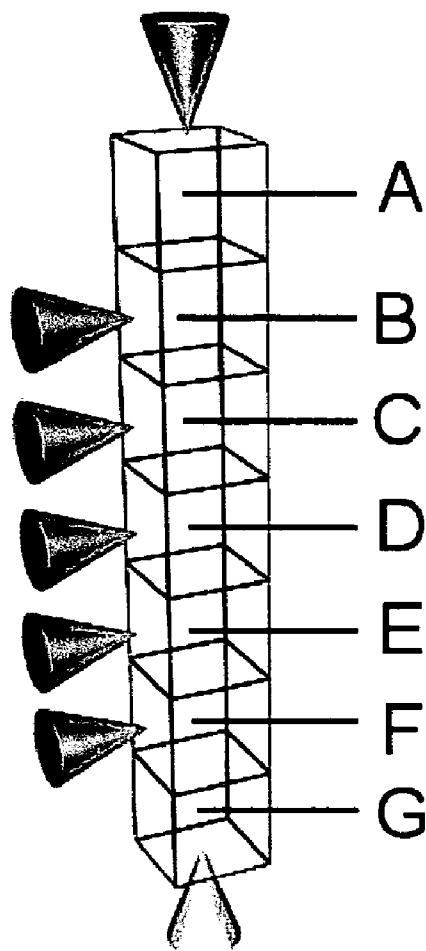


Figure 6

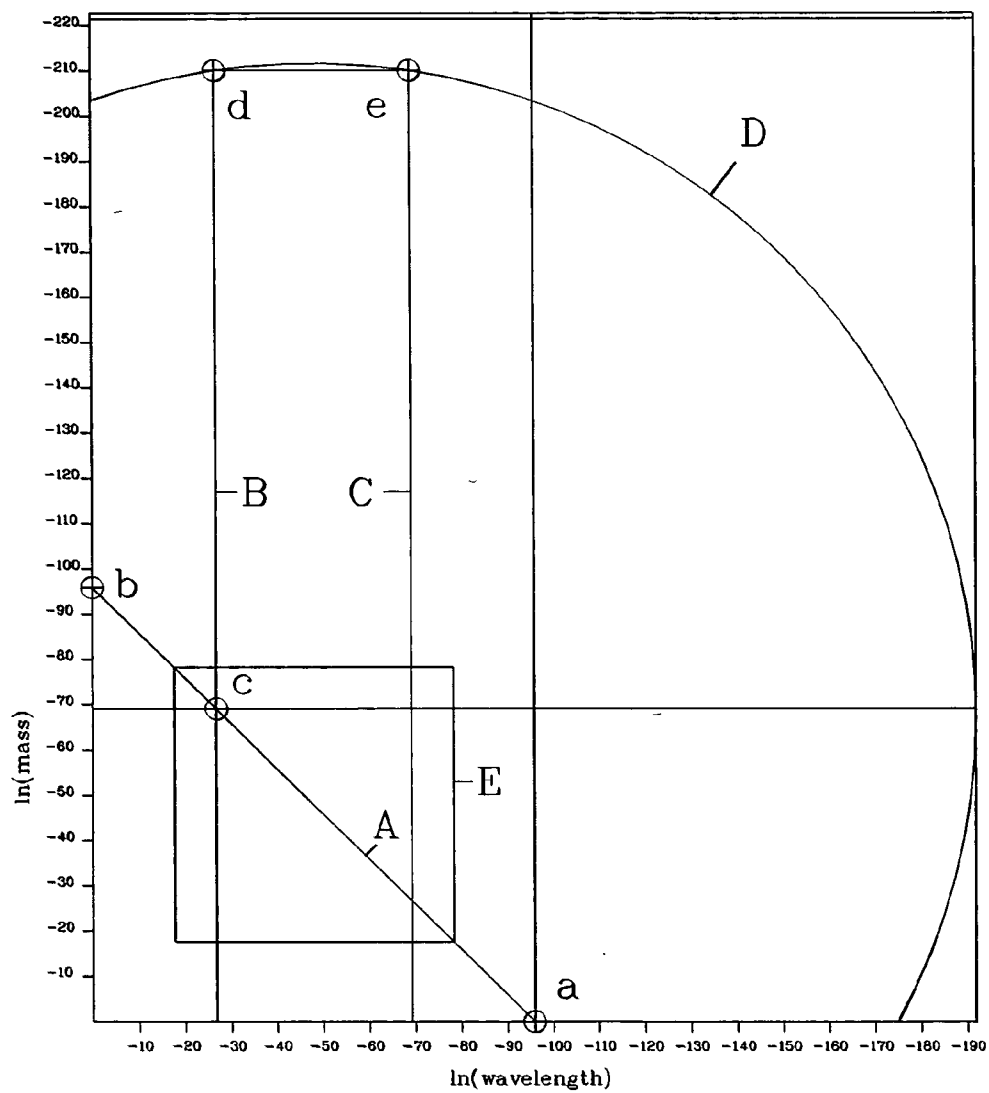


Figure 7

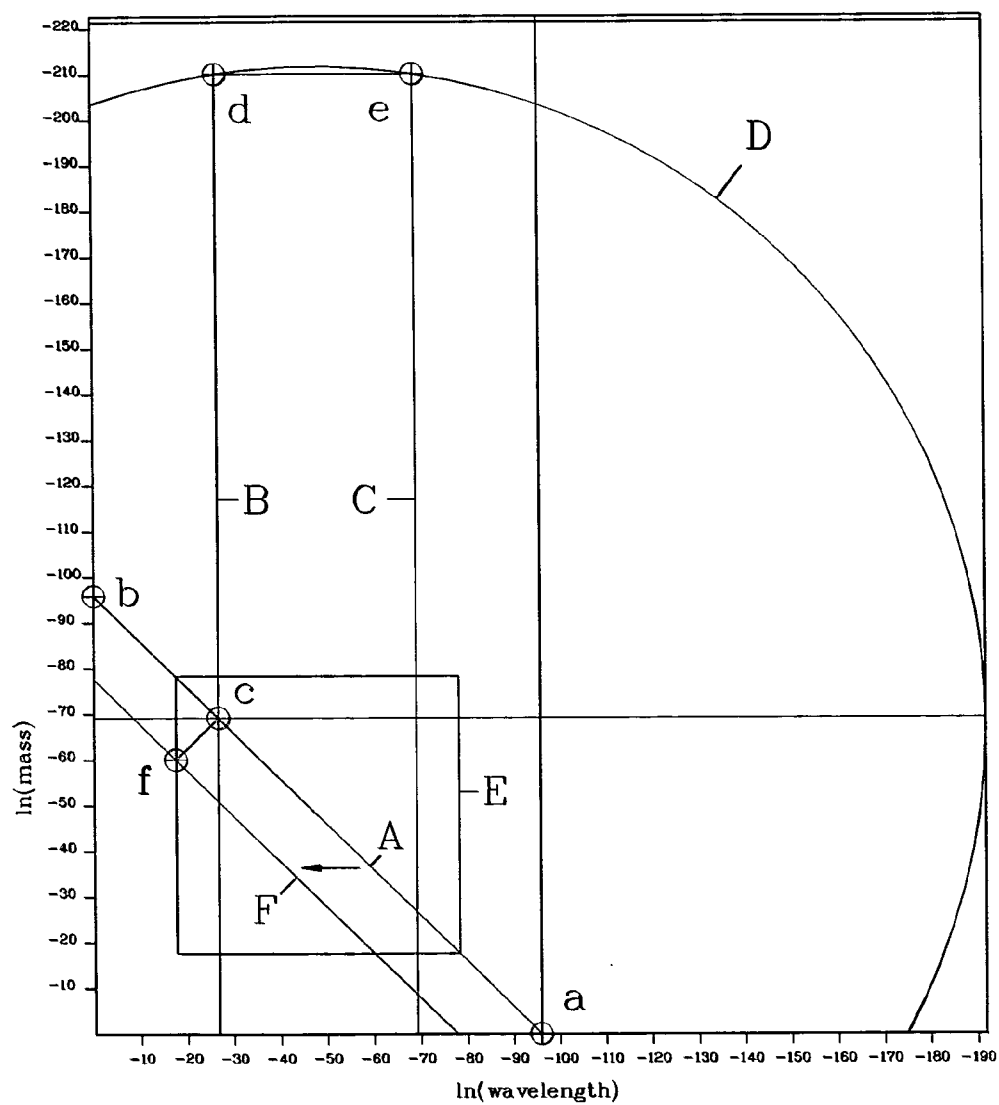
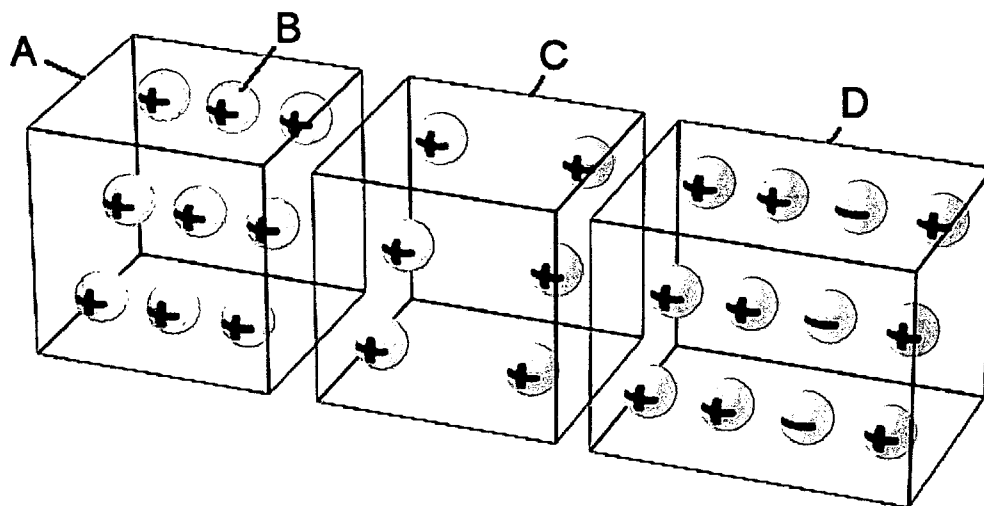
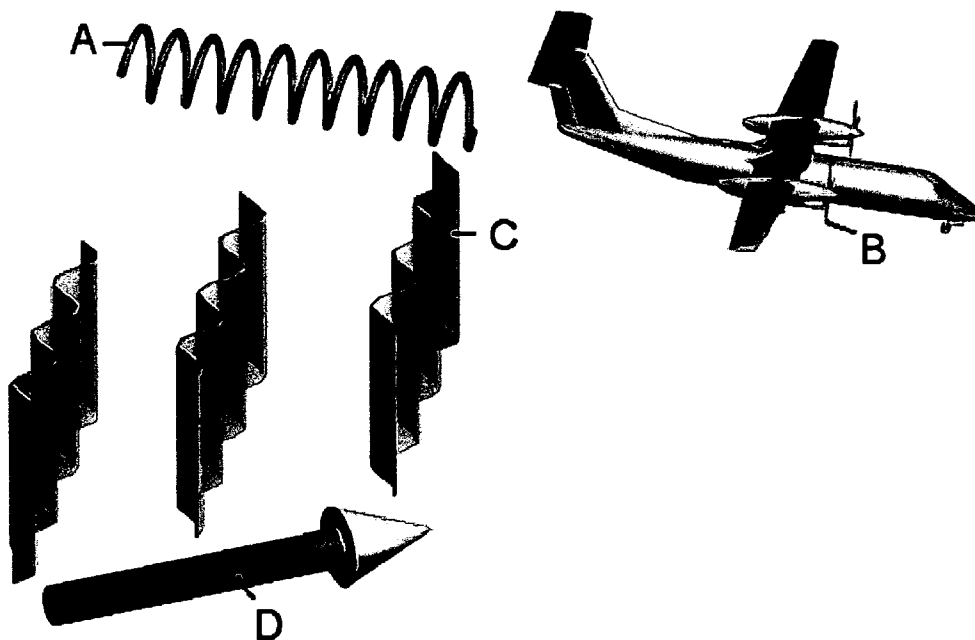


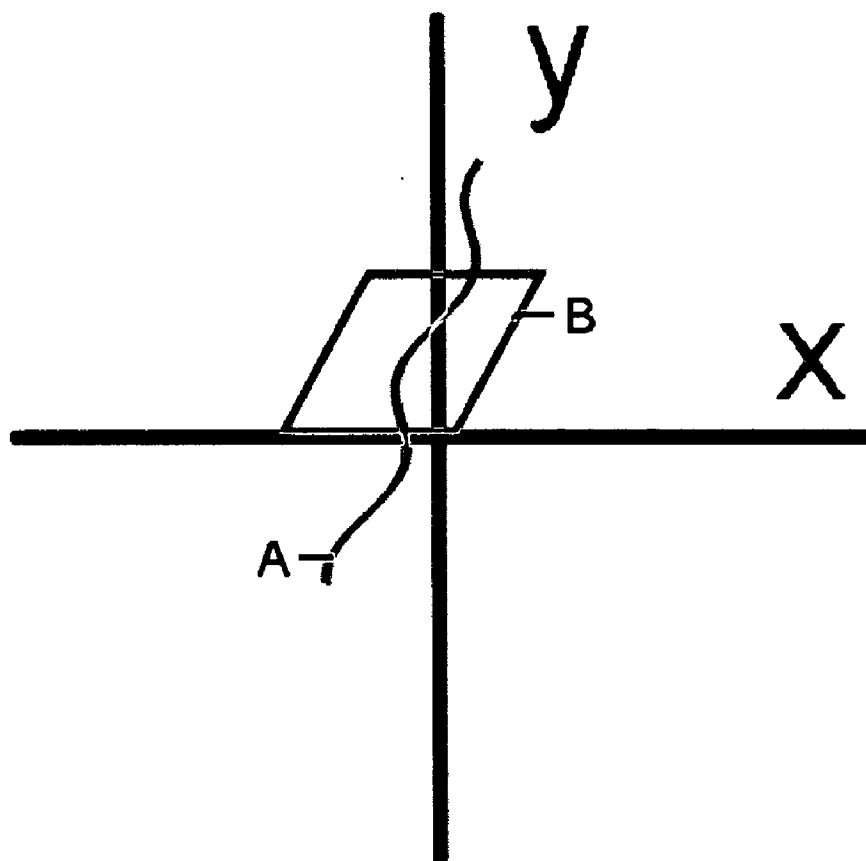
Figure 8



**Figure 9**



**Figure 10**



**Figure 11**

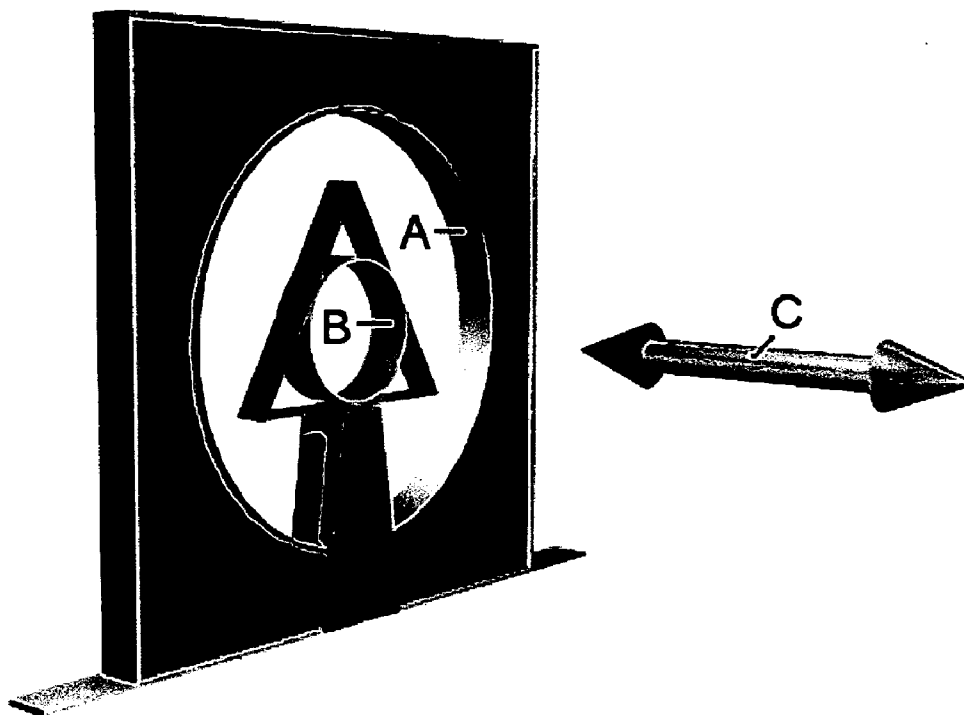
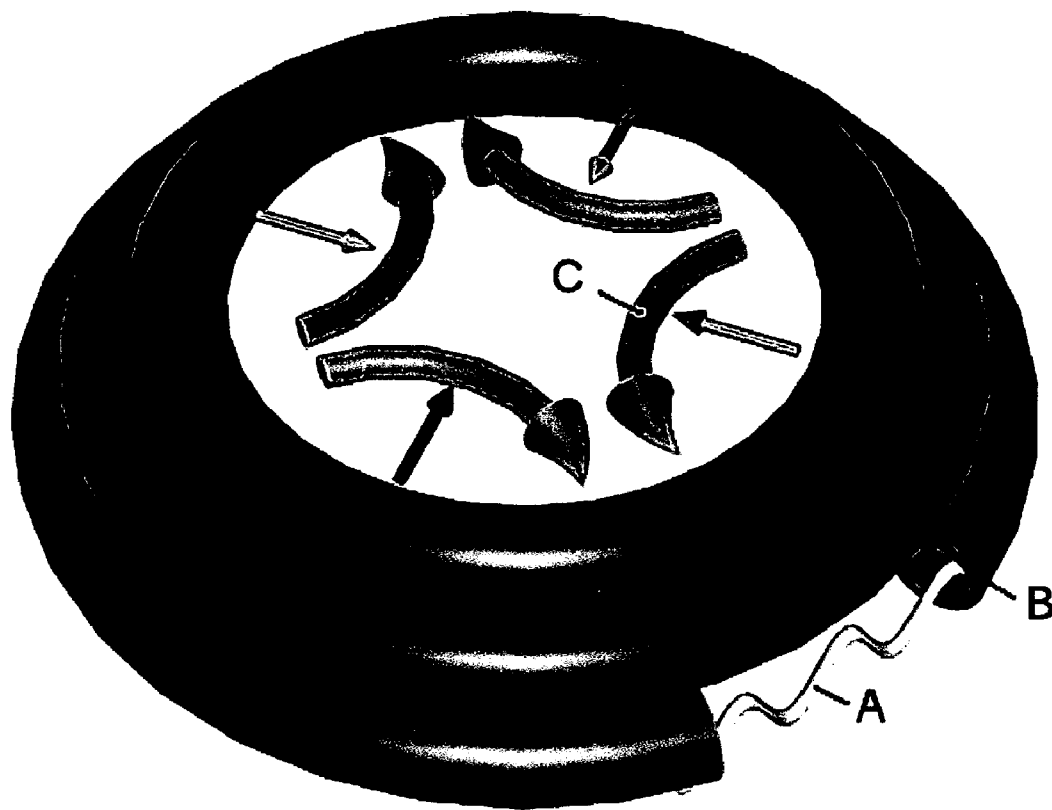
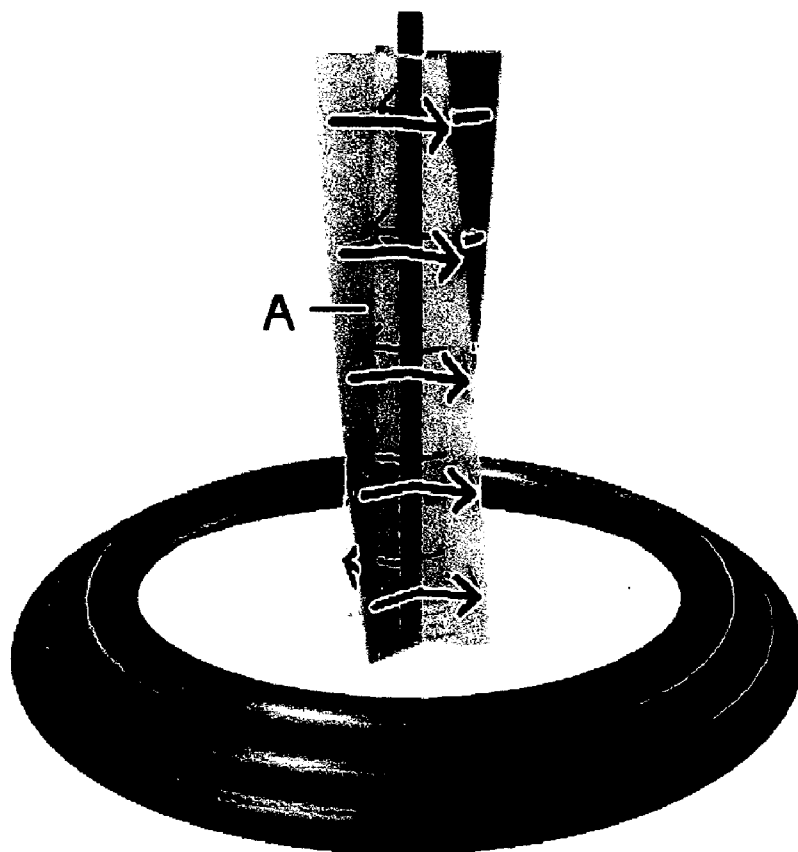


Figure 12

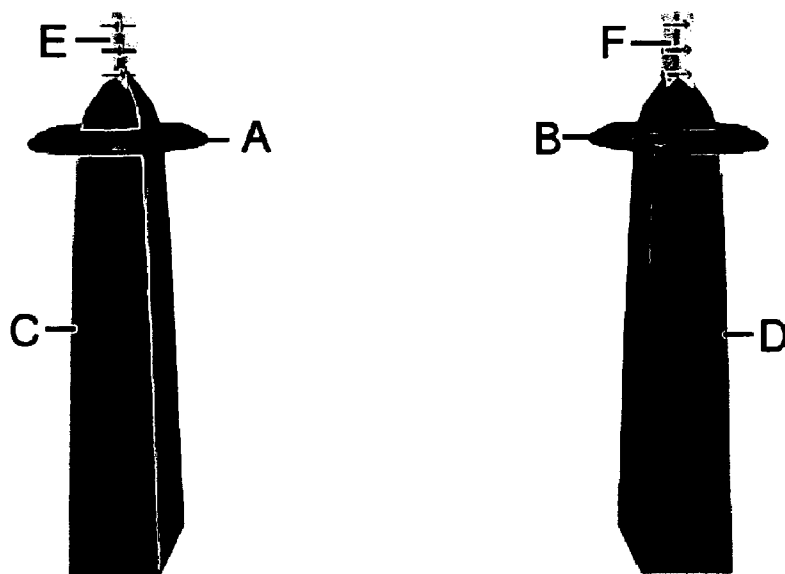




**Figure 13**



**Figure 14**



**Figure 15**

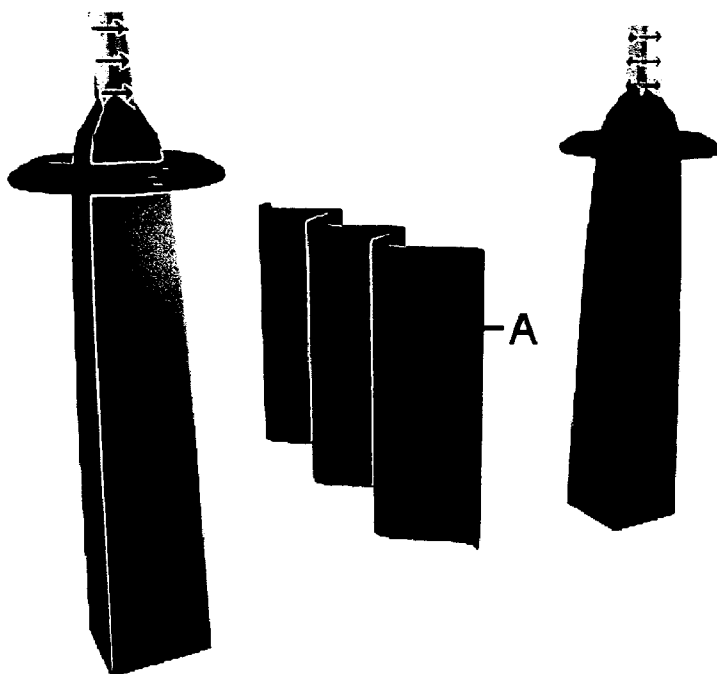
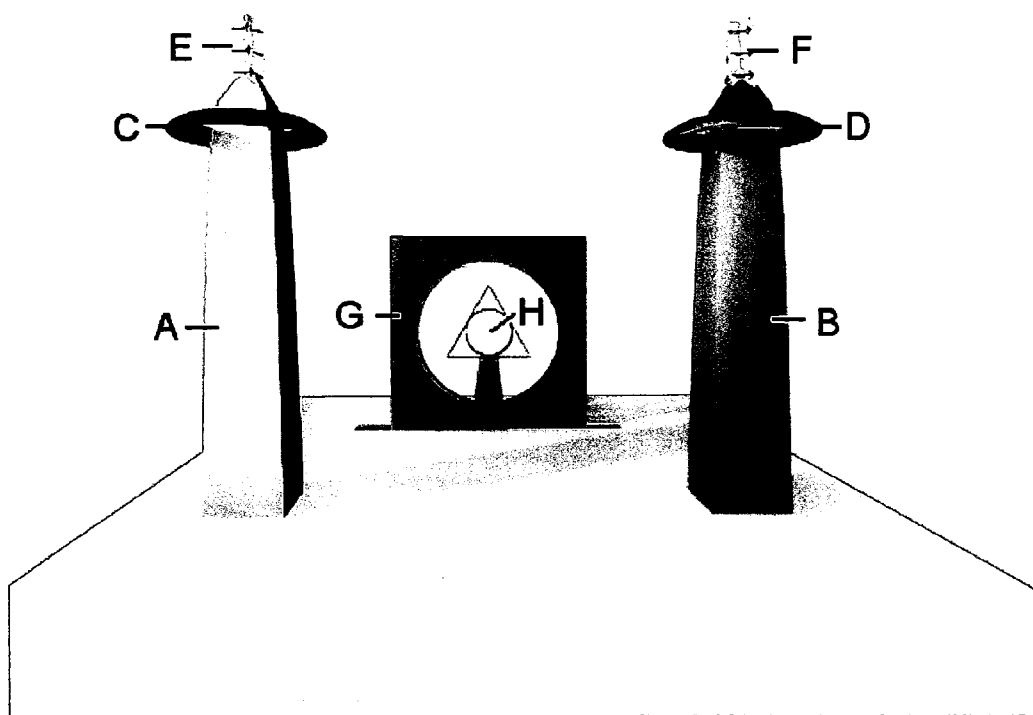


Figure 16



## FULL BODY TELEPORTATION SYSTEM

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention is a system that teleports a human being through hyperspace from one location to another using a pulsed gravitational wave traveling through hyperspace.

### BACKGROUND OF THE INVENTION

[0002] The basis for this invention is an event, referring to **FIG. 1**, occurring on May 2, 2004, in which the inventor ("he") personally experienced a full-body teleportation while walking to the bus stop (A) along a road (B) that runs perpendicular to the nearby commercial airport runways where planes are landing. There is a wide iron grating (D) for water drainage that crosses the road at the center of the bus stop. The grating width is such that one has to make a concerted effort to jump across it in order to get from one side to the other. Approximately 50 meters from the iron grating, he (E) felt a vertical wave (F), similar to a flag waving in the breeze, traveling down the street toward the bus stop. The wave velocity was about 1 meter per second, which was slightly faster than his walking speed. In the next instance, he (G) found himself down the street near the corner of the next block. Realizing that he had passed the bus stop, he turned around to see the iron grating approximately 50 meters up the street in back of him. Because there was no recollection of having jumped across the iron grating nor of having passed the bus stop's yellow marker line, he realized that he had been teleported a distance of 100 meters while moving along with the traveling wave. It was obvious that the wave was pulsed because the front edge overtook the inventor, moved with him momentarily, and then the back edge of wave left him as it moved on down the street. While contemplating this sequence of events, he then looked up and saw in a span of a few seconds a twin-turboprop airplane (C) in the distance crossing above the road while making a shallow descent in order to land at the airport.

[0003] It took a number of days in order to understand this sequence of events. The explanation involves knowledge of a wide range of subjects such as gravitation physics, hyperspace physics, wormhole electromagnetic theory and experimentation, quantum physics, and the nature of the human energy field.

[0004] It is obvious from the above scenario that the airplane momentarily crossing perpendicular to the road generates the aforementioned pulse. Because the airplane has an engine on each wing, there are two propellers which conceivably are rotating out-of-phase with each other. That is, the blade of one propeller could be pointing up and the equivalent blade on the other engine could be pointing in a slightly different direction. Notice that the tip of the blade traces out a helix as the plane is landing.

[0005] In gravitation physics, referring to **FIG. 2**, it is known that two masses of mass  $m_1$  and  $m_2$  (A,B) attached by lever arms slightly offset by an angle  $\delta\theta$  along the radial direction to the rotating shaft (C), will produce a gravitational wave (D) traveling perpendicular to the shaft. The mass and wave are referred to as the source and receptor respectively. Referring to a side view looking along the shaft **FIG. 3**, the product of the mass  $m$  times the angular acceleration  $a$  is a constant such that  $m_1a_1$  is equal to  $m_2a_2$ . The distance between the masses is length  $L$ , which makes

an angle  $\theta$  with the horizontal axis. The difference in time of travel to the receptor gives rise to a difference in phase  $\delta\theta$  equal to the angular velocity  $\omega$  of the rotating shaft times the length  $L$  times the cosine of the angle  $\theta$

$$\delta\theta = \omega L \cos(\theta)$$

[0006] At the receptor, the amplitude of the wave is equal to the mass times the acceleration times the phase difference divided by the radius  $r$  to the receptor

$$A = \frac{m_1 a_1}{r} \delta\theta \approx \left( \frac{m \omega L \sin(\theta)}{r} \right) (\omega L \cos(\theta)) = \frac{m \omega^2 L^2 \sin(2\theta)}{r}$$

Even though the turboprop airplane engines have a high rotational speed and a large separation distance between masses, the gravitational wave which is produced is small and not noticed. The problem is that the gravitational constant  $G$  in this dimension has such a small value equal to the speed of light  $c$  squared divided by the linear mass  $\Omega$  of the universe

$$G = \frac{c^2}{\Omega} = \frac{(299792458 \text{ m/s})^2}{1.346812891 \cdot 10^{27} \text{ kg/m}} = 6.673200002 \cdot 10^{-11} \frac{\text{m}^3}{\text{kg s}^2}$$

[0007] On the other hand, a gravitational wave traveling in hyperspace would be magnified enormously due to the fact that the linear mass is so small. The magnitude of the gravitational constant in hyperspace can be estimated in the following manner. At the beginning of the 20th century, a man's parents were dying of tuberculosis. With their permission, he placed them and their beds on weighing scales. When each one passed away, each scale registered a drop in mass equal to 0.071 kilograms. This is the mass of the hyperspace energy being which resides in the physical body. Because hyperspace is co-dimensional with our dimension, the energy being interpenetrates the body and controls its movement.

[0008] Referring to **FIG. 4**, a human being has seven vortices (A through G) which are aligned along the centerline of the body. Each vortex is actually a co-gravitational field  $K$  which causes a pendulum placed in the field to spin in circles. For this reason, the  $K$  field has units of inverse seconds similar to an angular velocity. The vortex transports energy from our dimension to the energy being located in hyperspace. The gravitational field  $g$  and the co-gravitational field  $K$  are equivalent gravitationally to the electric  $E$  field and the magnetic  $B$  field found in electromagnetism. The equivalent gravitational solution to an electromagnetic problem can be obtained by substituting the following gravitational constants for the electromagnetic constants

Electromagnetic	Gravitational
$q$ (charge)	$m$ (mass)
$\rho$ (volume charge density)	$\rho$ (volume mass density)
$\sigma$ (surface charge density)	$\sigma$ (surface mass density)
$\lambda$ (line charge density)	$\lambda$ (line mass density)
$J$ (convection current density)	$J$ (mass current density)

-continued

Electromagnetic	Gravitational
E (electric field)	g (gravitational field)
B (magnetic field)	K (co-gravitational field)
$\epsilon_0$ (permittivity of space)	$-1/4\pi G$
$\mu_0$ (permeability of space)	$-4\pi G/c^2$
$-1/4\pi\epsilon_0$ or $-\mu_0 c^2/4\pi$	G (gravitational constant)

[0009] Referring to **FIG. 5**, each vortex is connected through the pineal gland by light cords to a separate hyperspace quantum well having its own frequency and dimension. The reason for this separation is that the conical spiritual eye, attached to vortex B, has to have its own energy structure which is different from vortex (A) which is connected to the quantum energy field in which the mental processes are developed. Due to the high speed of light in our dimension, the quantum wells are the size appropriate to molecules and atoms. In hyperspace, where the speed of light is one meter per second, the quantum wells are huge and can be manipulated. This manipulation has shown that the quantum wells are in the shape of a cube about a meter on a side. This makes the whole structure about seven meters tall for a volume of seven cubic meters. Thus the mass density  $\rho$  of hyperspace is about

$$\rho_h = \frac{.071 \text{ kg}}{7 \text{ m}^3} = .01 \frac{\text{kg}}{\text{m}^3}$$

which per unit area is the same value. Therefore the hyperspace gravitational constant is equal to

$$G_h = \frac{c^2}{\Omega_h} = \frac{\left(1 \frac{\text{m}}{\text{s}}\right)^2}{.01 \text{ kg/m}} = 100 \frac{\text{m}^3}{\text{kgs}^2}$$

The enormous magnification of the gravitational constant is therefore of the order of

$$\frac{G_h}{G} = \frac{100}{6.6732 \cdot 10^{-11}} \approx 1.5 \cdot 10^{12}$$

The question is how does this amplified gravitational wave created by the rotating propellers and turbines get into hyperspace from our dimension?

[0010] The answer comes from experiments done using the ancient Chinese form of breathing known as Chi Kung. Using this breathing technique, we have been able to levitate the human body over six feet in the air. The internal temperature of the stomach is around 200 degrees Fahrenheit. By simultaneously squeezing the diaphragm to bring hot air up through the lungs, and breathing through the nose to bring cold air down, rotating vortices are generated in the lung passages when these two air masses meet and twist around each other as depicted in the famous Yin-Yang diagram. Because the lung has variable diameter passages from the large diameter at the throat to the final small air sacs, there is a spectrum of rotating frequencies.

[0011] From quantum physics it is known that if there is a temperature fluctuation occurring among a group of harmonic oscillators in the environment, then Planck's reduced constant  $\hbar$  is increased by the cotangent of the constant times the frequency  $\omega$  of the oscillator divided by twice Boltzmann's constant  $k$  times the temperature  $T$

$$\hbar = \hbar \coth\left(\frac{\hbar \omega_n}{2kT}\right)$$

[0012] The effect of increasing Planck's constant, referring to **FIG. 6**, can be seen in the tetrahedron diagram. This diagram, of which there are now over 4000, plots the natural logarithm of mass on the vertical axis versus the natural logarithm of wavelength on the horizontal axis. In terms of mathematics, it is a subspace logarithmic manifold which projects geometrically the physics constants into our 4D spacetime dimension. That is, it is the geometry of the tetrahedron circumscribed by the sphere that determines the mass of the proton and electron. The mass of the electron times its wavelength is equal to the mass of the proton times its wavelength which in turn is equal to Planck's constant  $h$  divided by the speed of light  $c$

$$m_e \lambda_e = m_p \lambda_p = \frac{h}{c}$$

Taking the natural logarithm of the above equation shows that the mass plus the wavelength is equal to what is termed the base constant

$$\ln(m_e) + \ln(\lambda_e) = \ln\left(\frac{h}{c}\right) = -95.91546344$$

which is represented in **FIG. 6** by the 45 degree line (A) from point (a) on the horizontal axis to the vertical axis at point (b). The electron is located at point (c) which is the intersection of the electron wavelength (B) with line (A). The electron wavelength (B) reflects off the sphere (D) at points (d) and (e) and returns along line (C) as the electron mass. As shown in tetrahedron diagram tet0565, stored in the Library of Congress, the clockwise path of the electron transitions into the counter-clockwise path of the proton showing that the electron and proton are one and the same particle. Because the electron and proton travel in opposite directions along the path, they have the same charge but of opposite sign.

[0013] Our dimension is represented by Planck box (E) which is bounded by the Planck mass and the Planck wavelength. The Planck mass is equal to the linear mass of the universe times the Planck length which is the bottom limit of our dimension. The Planck wavelength is  $2\pi$  times the Planck length. Notice that the electron is located within the Planck box.

[0014] Referring to **FIG. 7**, if there is an increase in Planck's constant due to the temperature fluctuations among the harmonic oscillators, the 45 degree base line (A) moves to the left on the tetrahedron diagram as shown by line (F).

Because of the increase in the base constant, there is a corresponding increase in the electron mass and wavelength. The electron moves from point (c) to point (f) which places it at the edge of the Planck box (F) which is the boundary between space and hyperspace. At point (f), the electron is essentially no longer in our dimension.

[0015] Referring to **FIG. 8**, imagine a box (A) filled with nine electron oscillators (B). If Planck's constant is increased near the three oscillators in the middle, these electrons will leave this dimension. This leaves six oscillators as shown in the box (C). However, box (C) is the equivalent of box (D) in which there are still nine positive mass oscillators together with 3 negative mass oscillators. Thus there is an accumulation of negative energy ( $-p$ ) when information is lost from the environment to another dimension.

[0016] Dr. Kip Thorne, who co-authored the book *Gravitation* with Dr. Archibald Wheeler of Princeton University, has shown in a General Relativity spacetime curvature calculation that negative energy is required to open and stabilize the throat of a wormhole between space and hyperspace. The accumulation of negative energy in the aforementioned example generates wormholes between into hyperspace. Hyperspace has a low energy density because of the reduced speed of light in that dimension. Ordinarily, energy would not flow from hyperspace to space because space has a higher potential than the potential of hyperspace. This, of course, is the reason that the body vortices can flow energy into the energy field of the human being who is located in hyperspace. By creating negative energy, the potential becomes reversed such that low density hyperspace energy flows into our dimension as seen by the positive head

$$PE = \rho_{\text{hyperspace}} - (-\rho_{\text{space}}) = +2\rho$$

The low-density energy fills the body which allows a human being to float upwards like a helium balloon as verified by Chi Kung breathing as well as spinning on a motorized platform known as the Chakra Vortex Accelerator. The latter device resulted in the first mechanical means to produce anti-gravity.

[0017] The process of creating spinning thermal fluctuations is the same as found in the hot air vortices created by the jet airplanes landing at the airport near the road where the full-body teleportation occurred. Large vortices are created over the wing of the airplane at the same time that the turbine engines are spinning hot vortices into relatively cold air. These conditions produce wormholes between space and hyperspace. It takes a twin turboprop airplane landing behind the jet to generate the gravitational wave in the region where the wormholes have formed. The gravitational wave then traverses the wormholes into hyperspace, becoming highly amplified due to the change in linear mass and speed of light. Because the propeller blades are co-linear with the road, the gravitational wave travels in the direction along the road where it was encountered by the inventor.

[0018] From experiments with cavitating bubbles (see patent application Cavitating Oil Hyperspace Energy Generator), it was found that it is possible to produce a wormhole if the surfaces of the bubble collapse asymmetrically. A symmetric collapse of a spherical bubble produces enormous spacetime curvature distortions. An asymmetric collapse, using a magnetic field to distort the collapse, pro-

duces, in addition to the same severe spacetime distortions, negative energy as the bubble collapses. Due to some General Relativity considerations, the wormhole that is created starts rotating in a manner similar to the beacon light produced by a lighthouse.

[0019] Referring to **FIG. 9**, due to the forward helical motion (A) of the propellers (B) as the airplane crosses the road, the pulsed gravitational wave (C) is skewed backward at an angle (D). Due to the wormholes created by the presence of thermal vorticity fluctuations generated by the wing and turbines of the airplane, this skewed wave moves into hyperspace where it is highly magnified and detected by the inventor.

[0020] Referring to top view **FIG. 10**, the gravitational wave (A) causes a skewed compression and expansion of the hyperspace quantum wells (B) which constitute the human energy being. Due to this asymmetric distortion in the xy-plane, the quantum wells take the physical body out of dimension as long as the wave pulse is traveling with the human energy field. Once the back edge of the gravitational wave moves on past the quantum wells, the body is then brought back into dimension.

#### SUMMARY OF THE INVENTION

[0021] It is the object of this invention to teleport a human being from one location to another by creating a pulsed gravitational wave traveling through hyperspace that asymmetrically compresses and expands the quantum wells of the human energy being. This spacetime curvature distortion of the hyperspace quantum wells pulls the physical body out of dimension such that the human being is teleported along with the wave. As the pulsed wave moves on past the quantum wells, the human is brought back into dimension at some distant location. The invention requires (1) a device that will generate a wormhole between space and hyperspace, and (2) a device that will generate a gravitational wave which can be inserted through the wormhole.

[0022] Referring to **FIG. 11**, a magnetic vortex wormhole generator has already been developed which generates a wormhole between space and hyperspace as described in a previous patent application entitled Magnetic Vortex Wormhole Generator. Using this generator, it was found that smoke blown through one side of the coil does not appear on the other side of cylindrical coil. The smoke flows through the wormhole and appears in a hyperspace co-dimension. It was this experiment that resulted in making first contact with the androids of the Grey aliens who told me, in a remote viewing session, that "We saw you blowing smoke into hyperspace."

[0023] The wormhole generator consists of two concentric cylindrical coils (A,B), one of larger radius than the other, made of thin transformer iron laminate wrapped in opposite directions with one continuous wire driven by a sinusoidal current. The solenoidal coil generates a magnetic field through the laminate. Because the electrical current flows in opposite directions at different radii through the two windings, bucking electric fields (C) are created along the centerline of the generator. These radially-offset magnetic fields and bucking electric fields, as shown by a calculation using Einstein's General Theory of Relativity, generate both an enormous spiking spacetime curvature and negative energy

at small radius along the centerline where the wormhole is formed. The gravitational wave generator is then coupled to this wormhole generator.

[0024] Referring to FIG. 12, it is known from gravitation physics that injecting an electromagnetic wave (A) into a hollow toroidal waveguide (B) produces a hyperbolic spacetime curvature stress (C) in the plane of the waveguide. The tips of the arrows indicate compression and the tail of the arrows indicate expansion or stretching of spacetime. The reason for this spacetime curvature is because the waveguide forces the electromagnetic wave to curve around and travel in a circle. Spacetime has to compensate for this toroidal-generated stress by creating hyperbolic lines of stress in the inner plane of the toroid so that the overall spacetime curvature is zero. For a greater gravitational effect, three toroidal waveguides, phased 120 degrees apart, are used to seal off the curvature.

[0025] Referring to FIG. 13, the three toroids create a rotating, twisting, vertical propagating gravitational field (A) through the centerline of the toroids provided that the period of the electromagnetic wave is twice the period of the gravitational wave. This phase relationship is adjusted by selecting the correct radius for the frequency of the monochromatic wave.

[0026] In order to effectively use this gravitational wave, referring to FIG. 14, three phased toroidal waveguides (A,B) are mounted at the top of each of two identical square granite obelisks (C,D). The two obelisks are offset by a short distance between them. As the vertical gravitational wave rotates around along the vertical axis inside the obelisk, the edges of the square obelisks are compressed and expanded such as to create two cylindrical asymmetric gravitational waves traveling radially outward.

[0027] Referring to FIG. 15, these waves meet to form a plane gravitational wave (A) which travels down the centerline between the two obelisks.

[0028] Referring to FIG. 16, the full body teleportation system consists of the twin granite obelisks (A,B) on which are mounted near the top of each the toroidal waveguides (C,D) which produce the pulsed gravitational waves (E,F) that run the length of the obelisks. Because the gravitational wave is rotating inside the obelisk, the granite stone undergoes a very small asymmetrical compression and expansion. A cylindrical gravitational wave propagates out from each obelisk such that along the centerline between the two there is generated a plane gravitational wave. This wave enters the wormhole (H) created by the magnetic vortex generator which is located a short distance from and parallel to the obelisks. The wave is amplified by a factor of almost  $10^{13}$  when it enters the hyperspace co-dimension.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

[0029] FIG. 1. Perspective view of site where full-body teleportation occurred.

[0030] FIG. 2. Perspective view of gravitational wave generator.

[0031] FIG. 3. Planar view of gravitational wave generator.

[0032] FIG. 4. Perspective view of seven vortices of human energy being.

[0033] FIG. 5. Perspective view of seven large quantum wells of human energy being.

[0034] FIG. 6. Tetrahedron diagram showing Planck's constant and electron.

[0035] FIG. 7. Tetrahedron diagram showing electron moving out of dimension.

[0036] FIG. 8. Perspective view showing production of negative energy.

[0037] FIG. 9. Perspective view of skewed gravitational wave produced by propellers.

[0038] FIG. 10. Planar view of skewed quantum wells deformed by gravitational wave.

[0039] FIG. 11. Perspective view of magnetic vortex wormhole generator.

[0040] FIG. 12. Perspective view of hyperbolic lines of stress generated by toroidal waveguide.

[0041] FIG. 13. Perspective view of rotating, twisting, propagating gravitational wave generated by toroidal waveguides.

[0042] FIG. 14. Perspective view of toroidal waveguides attached to obelisks.

[0043] FIG. 15. Perspective view of gravitational wave generated by obelisks.

[0044] FIG. 16. Perspective view of magnetic vortex wormhole generator and obelisk gravitational wave generator.

#### DETAILED DESCRIPTION OF THE INVENTION

[0045] 1. The obelisks are quarried out of granite stone and cut with a large-diameter diamond saw that is used in highway construction. The beveled piece at the top is cut separately and cemented in place. A tapered aluminum bracket holds the toroids in place.

[0046] 2. The electronics for the magnetic vortex generator are similar to that used in the patent application Magnetic Vortex Wormhole Generator.

[0047] 3. The electronics for the toroidal waveguides is the familiar stub and coaxial cable driven by an amplifier and pulsed variable-frequency generator.

I claim:

1. A full body teleportation system consisting of:

generating a pulsed gravitational wave which propagates through a magnetic vortex wormhole generator; and

generating a wormhole with the magnetic vortex generator whereby the pulsed gravitational wave traverses through the wormhole and enters into hyperspace where the wave is enormously magnified due to the lower speed of light in that dimension.

2. The method of claim 1, wherein the step of generating the pulsed gravitational wave comprises:

using two granite stone obelisks;



mounting monochromatic-wave toroidal waveguides on top of each obelisk to create a rotating, twisting, propagating gravitational wave through the vertical axis of each obelisk; and

creating a cylindrical compression and expansion in each obelisk to produce a plane gravitational wave traveling down the centerline between the two obelisks.

3. The method of claim 1, wherein the step of generating a wormhole into hyperspace comprises:

using two concentric cylindrical solenoidal coils of different radii connected by a single wire wrapped in opposite directions on thin iron transformer laminate;

generating bucking electric fields down the centerline of the vortex generator which creates a spacetime curva-

ture distortion with negative energy in accordance with Einstein's General Theory of Relativity.

4. A teleportation system comprising:

generating a gravitational wave traveling through hyperspace which interacts with the human energy being; and

pulling the human energy being and physical body out of dimension when interacting with the pulsed gravitational wave such that the person is teleported from one location to another through hyperspace and back again into our 4D spacetime dimension.

\* \* \* \* \*



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(54) **MAGNETIC VORTEX WORMHOLE GENERATOR**

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(52) **U.S. Cl.** ..... **244/62**

(57) **ABSTRACT**

This invention relates to a magnetic vortex generator which has the ability to generate negative mass and a negative

spring constant which, according to Einstein's General Theory of Relativity, is required in order to create a stable wormhole between our space and hyperspace. Two separate, but electrically connected, toroidal coils of differing radii, carry magnetic flux in opposite directions about their common centerline. According to Maxwell's equation, this produces bucking electric fields along said centerline. Because the two solenoids have different radii, the parallel spring constant of both coils is negative. The negative mass together with the negative spring constant produce a real resonant frequency which can distort the spacetime curvature due to the creation of powerful spikes of negative mass. This phenomenon, similar to the common electrical thunderstorm, opens up a wormhole into hyperspace through which low-density hyperspace energy can enter into our dimension. This energy finds many application in new types of power supplies, inertia-less and mass-less spacecraft, vehicles that can travel light-years by moving out of dimension through hyperspace, surgery-less medical tables, cranes for lifting heavy objects, cold-welded crystals for crystal rotors, folding space waveguides, and electromagnetic field propulsion vehicles using highly relativistic fields.

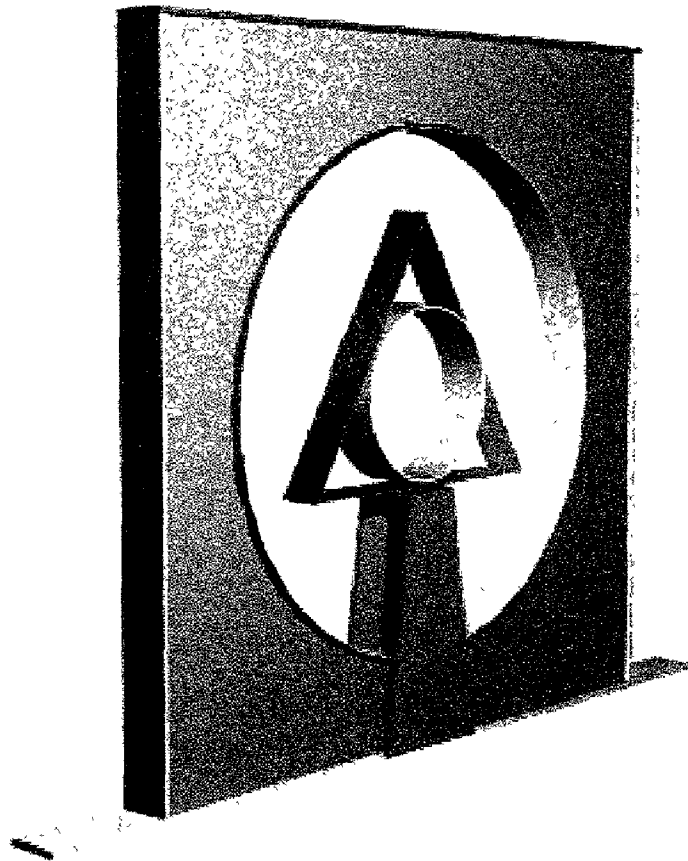


Figure 1

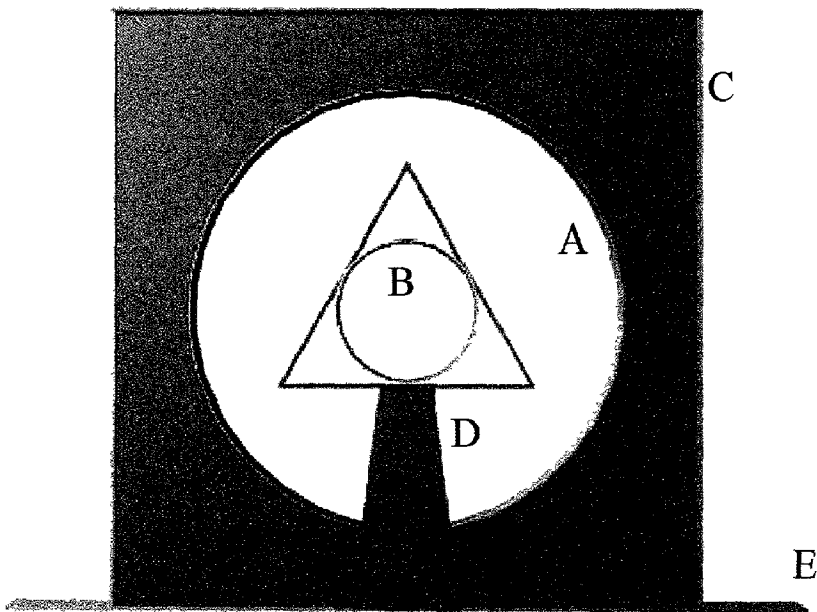


Figure 2

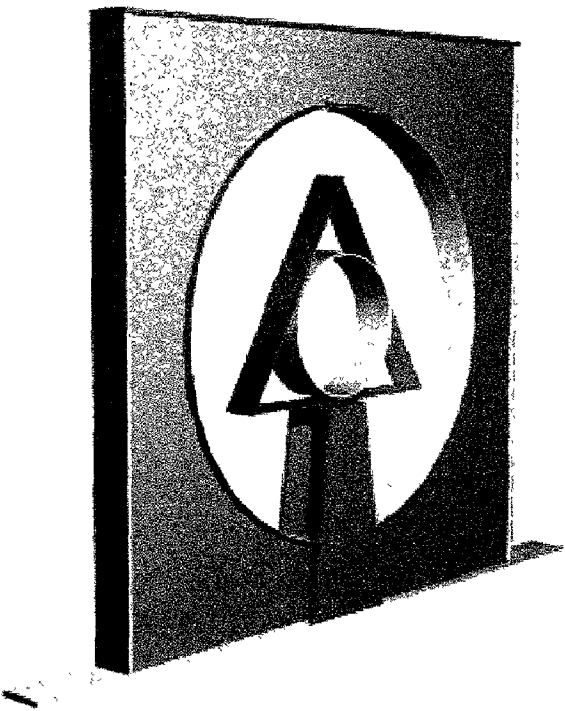


Figure 3

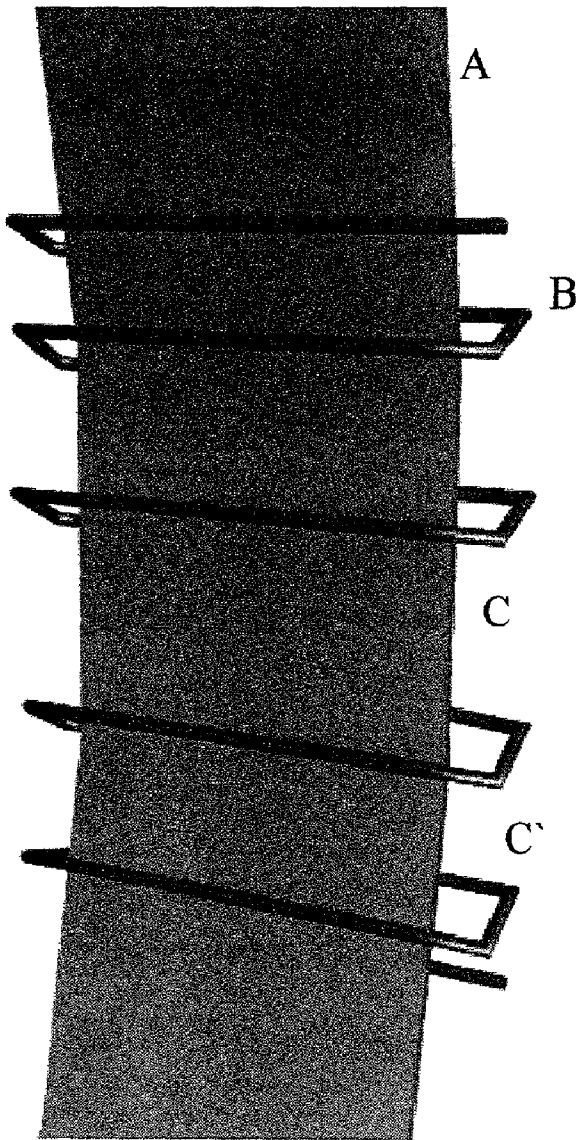


Figure 4

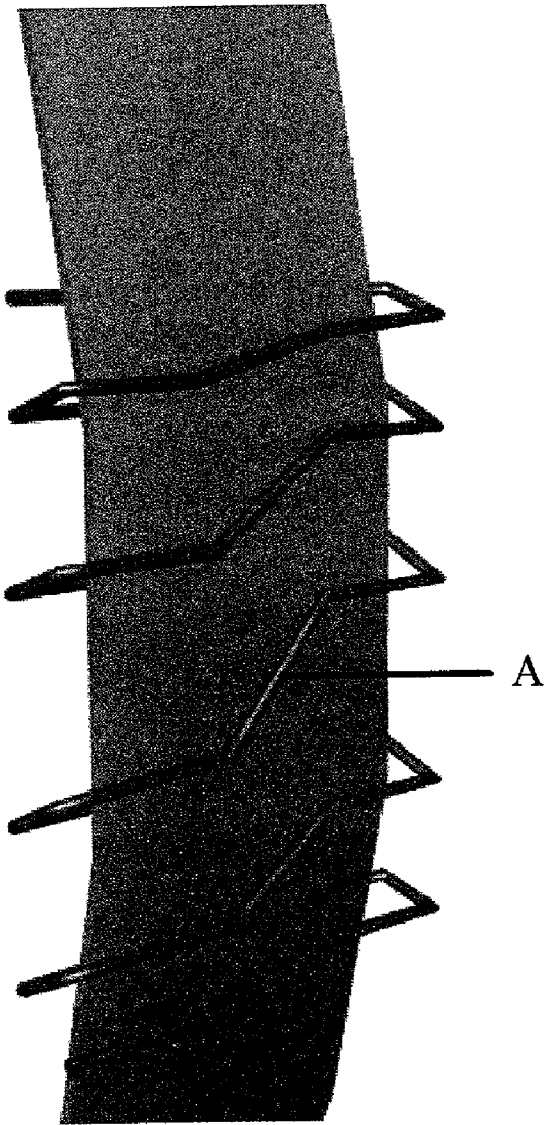


Figure 5

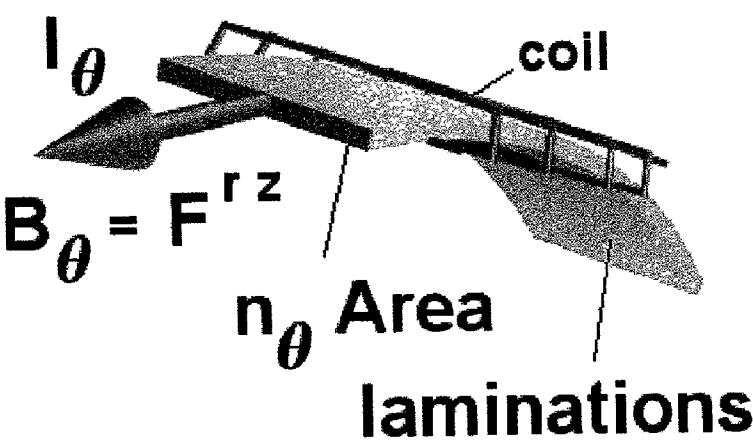


Figure 6

$$F^{\mu\nu} = \begin{vmatrix} & \begin{matrix} t & r & \theta & z \end{matrix} \\ \begin{matrix} t \\ r \\ \theta \\ z \end{matrix} & \begin{matrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & B_\theta \\ 0 & 0 & 0 & 0 \\ 0 & -B_\theta & 0 & 0 \end{matrix} \end{vmatrix}$$

Figure 7

$$k^z = \frac{\text{coul}}{\text{sec}} \cdot \text{m}^2 \cdot \frac{1}{\text{m}^2} \cdot \frac{\text{kg}}{\text{sec} \cdot \text{coul}} = \frac{\text{newton}}{\text{m}} = \frac{\text{force}}{\text{m}}$$

Figure 8

$$k^z = \frac{1}{(r+a)^2} - \frac{1}{r^2} = -a \left[ \frac{(2 \cdot r + a)}{(r+a)^2 \cdot r^2} \right]$$

Figure 9

t

r

$\theta$

z

t

r

$\theta$

z

-1

0

$B(\cos \theta - \sin \theta)$

0

$B(\cos \theta - \sin \theta)$

0

$r^2$

0

0

0

0

1

 $g_{\alpha\beta} =$ 

Figure 10

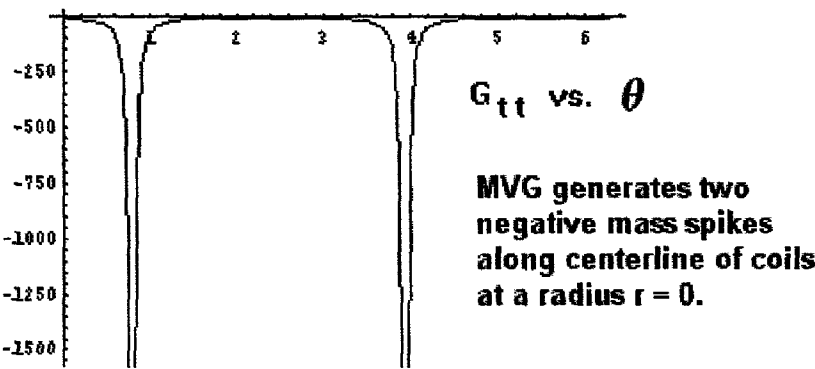


Figure 11

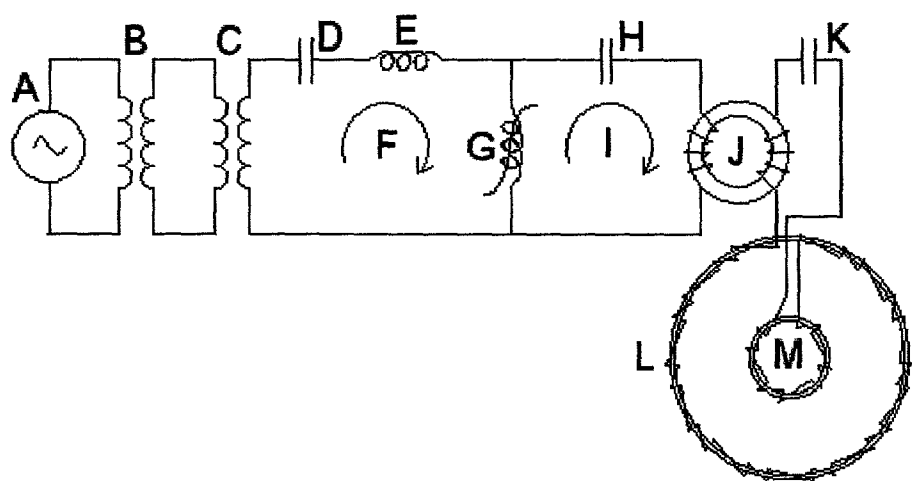
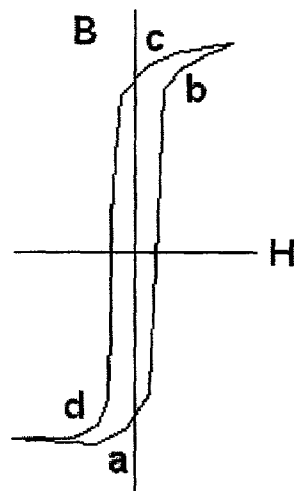


Figure 12





## MAGNETIC VORTEX WORMHOLE GENERATOR

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention, which is the subject of my present application, is comprised of two solenoids wound with a common wire in opposite directions on two separate toroidal curved-sheet transformer laminates of differing radii. The smaller solenoid is mounted along the centerline of the larger solenoid. This circular magnetic geometry creates linear bucking electric fields along the centerline of the coils. Because the magnetic flux in the laminates travels in opposite directions along arcs of differing radii in the two coils, a negative mass and a negative spring constant are generated by the system. From the theory of gravitational physics, a negative mass is prerequisite to producing a wormhole because it allows the throat of the wormhole to remain open and stable. The creation of the wormhole is facilitated by the appearance of a negative spring constant which allows the spacetime curvature to resonate to such a degree that said wormhole develops between our dimension and another co-dimension of hyperspace. Because the physics constants of hyperspace are different from ours, the wormhole allows hyperspace energy having a low speed of light to enter our dimension. Because electromagnetic fields obey the Lorentz transformation, it is now possible with this lower velocity of light to create huge relativistic fields which can drive the new electromagnetic field propulsion vehicles.

### BACKGROUND OF THE INVENTION

[0002] The idea for this coil configuration comes from the observation of powerful thunderstorms, as described by physicist Dr. Richard Feynman in his *Lectures on Physics*, a copy of which is enclosed as a reference. Upon reading his explanation, I realized that the thunderstorm is actually a hyperspace physics phenomenon.

[0003] After the passage of a large lightning storm, people have observed that a car tire rim has merged with the trunk of a tree growing in the ground. Due to the large branches of the tree, there is no possible way that it could slide down the branches and around the trunk. It was observed also that a straw of wheat became embedded in the hard wood of a telephone pole. It turns out that the thunderstorm offers an explanation as to how this can occur.

[0004] After reading Feynman's explanation, it can be seen that the key to this phenomenon is that there is a downward and an upward lightning bolt, sometimes occurring together if the leader branches into two paths. Bolts of lightning also like to strike tall objects such as telephone poles or trees. Now an electrical current moving downward produces a clockwise magnetic B field, as seen from above. On the return stroke, the current is moving upward which produces a counterclockwise magnetic B field. Thus the thunderstorm produces two huge bucking magnetic B fields which is the magnetic geometry of this magnetic vortex generator. Using my tetrahedron diagram, I will then show that the low density hyperspace energy with its low speed of light is able to pull the rim out of dimension so that it can merge with the tree at the moment the lightning strikes.

### SUMMARY OF THE INVENTION

[0005] It is the object of this invention to produce two toroidal oppositely-directed magnetic flux fields in two

separate yet electrically connected solenoids of differing radii. Because the lines of flux are traveling in toroidal, curved-sheet transformer laminates along arcs of different curvature, the fields produce what is known in gravitational physics as negative mass. Negative mass has the property that if you project it onto a hot surface, the surface will cool rather than heat up. The negative mass, together with the resonance of the spacetime curvature involving a negative spring constant, create a wormhole into hyperspace. This interdimensional connection allows low speed of light hyperspace energy into our dimension which can be used to decrease the weight of an object, or produce huge relativistic electromagnetic fields that can be used to drive the new electromagnetic field propulsion spacecraft.

### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0006] Not Applicable.

### A BRIEF DESCRIPTION OF THE DRAWINGS

- [0007] FIG. 1. Front view of magnetic vortex generator.
- [0008] FIG. 2. Perspective view of the magnetic vortex generator.
- [0009] FIG. 3. The non-linear coil winding on the interior face of the laminations.
- [0010] FIG. 4. The non-linear coil winding on the exterior face of the laminations showing that there is an electrical current component in the theta direction.
- [0011] FIG. 5. The coil variables for the tensor calculation of the negative spring constant.
- [0012] FIG. 6. The Faraday electromagnetic tensor showing the position of the magnetic field in the  $\{r,z\}$  slots.
- [0013] FIG. 7. The units of the spring constant.
- [0014] FIG. 8. The parallel spacetime spring constant.
- [0015] FIG. 9. The cylindrical g metric tensor including the magnetic fields.
- [0016] FIG. 10. A plot of the mass term  $G_n$  for Einstein's G curvature tensor showing that two negative mass spikes are created along the centerline of the generator. Negative mass is required to keep open the throat of the wormhole.
- [0017] FIG. 11. Circuit diagram for the magnetic vortex generator.
- [0018] FIG. 12. BH curve for non-linear SuperMalloy toroidal core. From the equation,  $B=\mu H$ , the slope of the line is equal to the permeability  $\partial B/\partial H=\mu$ .

### DETAILED DESCRIPTION OF THE INVENTION

[0019] 1. The fact that negative mass is required to keep the throat of a wormhole open has been shown to be valid by physicist Dr. Kip Thorne in the enclosed reference physics paper. The key point of this invention is that if you have a negative mass, you also require a negative spring constant in order to get a real frequency and vice versa. The angular frequency of vibration is equal to the square root of the spring constant K divided by the mass M, or  $\omega=\sqrt{K/M}$ . If the mass is negative, and the spring constant is positive,

the frequency is imaginary. Therefore, in order to get a real frequency, the spring constant has to be negative also.

**[0020]** 2. Referring to **FIG. 1**, the magnetic vortex generator consists of a large toroidal solenoid (A) and its support structure (C), a smaller toroidal coil (B) with its support structure (D) which holds the coil along the centerline of the larger coil. The entire structure sits on a base (E).

**[0021]** 3. The two solenoids are wound with a common wire in opposite directions on two separate toroidal curved-sheet transformer laminations of differing radii. From the right hand rule, a changing circular magnetic field in the direction of the fingers produces a linear electric field in the direction of the thumb. Because there are two coils producing two magnetic fields in opposite directions, there are two bucking electric fields down the centerline of the coils. This duplicates the thunderstorm conditions. A perspective view of the generator is shown in **FIG. 2**.

**[0022]** 4. A enlarged view of the non-linear coil winding is shown in **FIG. 3**. The wire (B) is wound around the thin transformer laminations (A) with a non-linear coil spacing as shown by the difference in spacing between length (C) and (C'). On this inner side of the coil, the wire is wound straight across where it can be seen that the wire is normal to the edge of the laminations. Not shown are two strips of Velcro which keep the wire aligned and offset from the tape-covered metal laminations.

**[0023]** 5. Since the wire is straight across on this side, the opposite side has to have the wire run in a diagonal manner as seen in **FIG. 4A**. In terms of cylindrical coordinates, the components of the electrical current in the coil flow in the z-direction across the breadth of the lamination and in the O-direction around the lamination.

**[0024]** 6. The reason for the non-linear spacing is to preserve the vector potential of the coil. The vector potential is a more important field than the magnetic field because it can extend out past the windings of a long solenoid. If you look at the units, it is the field momentum per charge or kilogram meter per second coulomb. Notice that the derivative of the vector potential with respect to time is an electric field, while a derivative with respect to length is the magnetic field. The inductance of the coil times the current density is equal to the vector potential. Thus the inductance gradient of the coil times the current per meter is the magnetic field. So the non-linear coil picks up an additional magnetic field around the coil besides the one created in the laminations by the winding itself

**[0025]** 7. Taking a closer look at the coil in **FIG. 5**, it is constructed of thin laminations taped together to form a cylindrical shape with a wire coil wrapped around it. This creates a magnetic field in the theta  $\theta$  direction within the laminations. Because the coil is wrapped as a helix, there is a current component  $I_\theta$  in the theta direction. The cross-sectional area Area through which the magnetic flux flows times a normal vector n in the theta direction is the tensor area  $n_\theta$  Area. If the radius of the coil is r, then the curvature K is  $1/r^2$  pointing in the radial direction. Because there are two coils with differing radii, the generator has two curvatures associated with it.

**[0026]** 8. In the geometry of electromagnetism, the magnetic field is part of the electromagnetic Faraday tensor  $F^{\mu\nu}$  which is a 4 by 4 spacetime matrix having rows and columns

of time t, radius r, angle  $\theta$  and height z in cylindrical coordinates. The first index  $\mu$  refers to the row, and the second index  $\nu$  refers to the column. The diagonal of the matrix is zero. The first row and column belong to the electric field. All the other slots are filled by the components of the magnetic field. The  $B_\theta$  component is located in the complementary slots of r and z as shown in **FIG. 6**. Now a tensor product can be written with the available variables  $I^\theta$  no Area  $K_r F^{rz} = k^z$ . This says that the current around the loop in the theta direction times the lamination area vector in the theta direction times the curvature K of the coil in the radial direction times the magnetic field in the theta direction is equal to a spring constant in the z-direction, or normal to the plane of the coil. All the tensor components cancel out except for the z-direction. That is, the coil produces a spacetime spring constant through the center of the coil where there are resonant bucking electric fields. So the coil is creating a magnetic spring. The units of the spring constant are shown in **FIG. 7** as force per meter.

**[0027]** 9. Because there are two coils operating in opposite directions in regions of differing curvature, there are two parallel spring constants generated along the centerline. Two springs in parallel sum, but the inner coil is negative due to the triple product of negative signs of current, field and area. Looking at the front view of the coils, the right hand rule shows the field going counterclockwise with the thumb pointing along the electric field in the positive z-direction. The inner coil with the field going in the clockwise direction has the electric field in the negative z-direction. Therefore the outer coil's positive spring constant sums with the inner coil's negative spring constant to produce an overall negative spring constant as shown in **FIG. 8**. The inner coil has a radius r, and the spacing between the outer and inner coil is a. In this design, the inner radius is 1, and the outer radius is 3 which is the magic ratio in physics of 1/3. That makes length a equal to 2. Substituting  $r=1$  and  $a=2$  into the spring constant equation shows that the ratio is negative 8/9. That is, the spring constant is negative as previously asserted. If the spring constant is negative, it must produce negative mass in order to have a real frequency of resonance. Since it produces negative mass, then it can produce a wormhole as shown by Dr. Kip Thorne.

**[0028]** 10. The geometry of hyperspace physics is based on the geometry of the tetrahedron which is circumscribed by the sphere. The corners of the tetrahedron touch the sphere at a latitude of  $19.47122063^\circ$  which turns out to be, in terms of planet cosmology, the location where all the large volcanoes and vortices occur on Earth, Mars, Jupiter, Uranus and Neptune. Furthermore, the cosine squared of this angle is 8/9, which is the spring constant ratio for the magnetic vortex generator. That is, the coil is interacting with the geometry of spacetime which is why it is such an effective wormhole generator. As will be demonstrated later, the tetrahedral geometry of hyperspace shows that the electron and proton are one and the same particle. This is a new discovery in science coming out of this research. The diagram also shows that when the speed of light is reduced, due to the low density of energy coming into our dimension through the wormhole, Planck's constant divided by the speed of light puts the electron at the boundary between space and hyperspace. That is, the electron and the proton go out of dimension which is the reason that the car tire rim can become merged with the tree. The ramifications of this magnetic vortex generator are enormous. It means develop-

ing new types of crystals through interdimensional merging which will be needed in the development of these spacecraft and their crystal rotors. It means the possibility of teleporting spacecraft through hyperspace over distances of light years using the new folding space waveguides. It means light-weight or inertia-less spacecraft which can be accelerated at hundreds of thousands of g's. It means the ability to lift extraordinary loads in construction work. It means surgery-less medical tables where tumors can be pulled directly out of the patient's body.

[0029] 11. Because we have a magnetic spring, then there is some resonant frequency at which the coil can be operated in order to create a large spacetime distortion. It is this distortion that creates the wormhole into hyperspace. From this it follows that the wormhole attaches to a low pressure region with a magnetic monopole. Because pressure is linear mass times the speed of light squared divided by area, a low pressure signifies a low speed of light and less dense matter. What this means is that opposite polarity spacetime curvature at two ends of an electrode will produce a voltage along the electrode, effectively creating a power supply. The reason for this is that spacetime curvature, as shown by Einstein's General Theory of Relativity equation  $G_{\alpha\beta} = 8\pi T_{\alpha\beta}$ , is equal to the square of the electromagnetic fields in the stress-energy tensor T. So the curvature on the ends of the electrode appear as voltages and the system acts as a battery supply to power the spacecraft.

[0030] 12. The other characteristic of the magnetic vortex generator is that it can pull objects out of dimension allowing the object to apparently move through solid walls. The object doesn't actually move through the wall because the object is not in the same dimension as the wall; it just appears that way. Moving out of dimension and then back again on the other side of the wall would effectively move the object through the wall for all intents and purposes.

[0031] 13. The tetrahedron diagram is a physics diagram which plots the natural logarithm of mass to the natural logarithm of wavelength. The product of mass times wavelength is equal to Planck's constant divided by the speed of light. So the product of the electron mass times its wavelength is equal to the proton mass times its wavelength is equal to the Planck mass times the Planck wavelength. The Planck wavelength is the bottom dimensional limit of the universe. We live in the Planck box which is bounded by the Planck wavelength and Planck mass. Outside this box is hyperspace.

[0032] 14. Because logarithms sum, the sum of the log of the mass plus the log of the wavelength is a constant sum. Thus the electron and proton and Planck mass slide on a 45° line known as the base constant which is equal at the axes to the log of Planck's constant divided by the speed of light. Planck's constant is measured in joule-sec so that multiplying it by the frequency 1/second of light gives the energy of the photon particle.

[0033] 15. Planck's constant is equal to the Planck wavelength times the Planck mass times the speed of light. The 45° base constant is Planck's constant divided by the speed of light, which means that the speed of light cancels out top and bottom, leaving the area of the Planck box as the value of the base constant. Hyperspace has a low linear mass compared to our dimension. Therefore, Planck's constant is reduced when this energy enters our dimension through the

wormhole created by the generator. And the base constant is also so reduced. In terms of logs, this means that the 45° base line becomes more negative and moves to the right on the diagram. As it does so, the base line intersects the electron at the Planck wavelength which is the separation point between space and hyperspace. That is, the electron moves out of dimension. Because the electron and proton are one and the same particle, as shown in reference tetrahedron diagram tet0565, the proton and hence the entire atom is taken out of dimension as well.

[0034] 16. All of this can be seen more easily graphically on the tetrahedron diagram itself, referring to reference tetrahedron diagram tet3025. The 45° line which intersects the electron at point (b) is the base constant for our dimension. As you can see, this base line intersects the horizontal axis at a value of  $-95.91546344$  which is the log of Planck's constant  $h$  divided by the speed of light. Because Planck's constant is proportional to the linear mass, it is reduced in value by the low density hyperspace energy and, in terms of logs, becomes more negative. This moves the base line to the right at a value of around minus 105. The new base line intersects the electron at point (a) which is located on the Planck wavelength that is the boundary between space and hyperspace. Thus the electron at point (a) goes out of dimension.

[0035] 17. It was inferred previously that a negative spring constant meant a negative mass was produced by the wormhole generator. This can actually be calculated using Einstein's General Theory of Relativity. The calculation starts with the g metric tensor which is a spacetime measurement of distance in terms of time  $t$ , radius  $r$ , horizontal angle  $\theta$  and length  $z$ . This 4 by 4 matrix is shown in FIG. 9 where the diagonal line has a signature in cylindrical coordinates of values equal to  $\{-1, 1, r^2, 1\}$ . All the other terms of the matrix are zero except for the magnetic fields in the two coils. Because the field is changing sinusoidally with time in the theta direction, the field has to go into the  $\{t, \theta\}$  and  $\{\theta, t\}$  slots of the matrix. Because the field in the inner coil is in the negative direction compared to the outer coil, and including a 90° phase shift between the two fields, a suitable magnetic field function would be  $B(\cos(\theta) - \sin(\theta))$ .

[0036] 18. Using a general relativity software package, Einstein's G curvature tensor can be calculated for this particular metric. The first term  $G_t$  in the upper left hand slot in the corner is the mass term for the tensor. All the other terms are either electromagnetic fluxes or pressure terms involving the squares of the fields.

[0037] 19. Referring to FIG. 10, a plot of the mass as a function around a small circle shows that two negative mass spikes occur around the circumference of the circle. Because the radius is almost zero, the two spikes are actually coincident.

[0038] 20. This next section shows the electrical system used to drive the magnetic vortex generator. Referring to FIG. 11, the system is driven by a sinusoidal voltage source (A) into a 1:1 turns isolation transformer (B). The voltage is stepped up into the range of thousands of volts using a step-up hi-pot transformer (C). The first loop consists of a direct current blocking capacitor (D), a transformer choke (E), a variable inductance (G) and the current in the loop (F). The variable inductance is a coil winding on a toroidal core

wound with thousandth-inch thick SuperMalloy tape. This coil acts as a magnetic switch due to its variable permeability.

[0039] 21. Referring to the accompanying drawing in FIG. 12, the slope of the BH curve is actually the permeability of the core. At point (a) on the curve, the slope is very low and therefore the permeability is very small. The resistance of the coil is the frequency of the current times the inductance of the coil. If the permeability is small, then the inductance is low, which means that the coil resistance is low initially. With a low resistance in the coil, current (F) flows through the winding rather easily. Then the coil goes from point (a) to point (b) where the permeability and resistance increase. This change in resistance from a low to a high value dumps the magnetic energy into capacitor (H). Then the non-linear coil saturates between points (b) and (c) where again the coil has a small slope and the coil resistance switches to a low value. Capacitor (D) then dumps its charge (I) through coil (G) producing a large voltage spike in the input and output winding of transformer toroidal coil (J). The magnetic flux in coil (J) then produces a voltage spike in coils (L) and (M) of the magnetic vortex generator. The frequency of oscillation of the generator is determined by capacitor (K) and the overall inductance of the two coils. The diagram shows that the winding is non-linear and in opposite directions going from outer coil to the inner coil.

[0040] 22. Frequency of oscillation has to be kept under 20 MHz in order to create a soft wormhole that connects to low pressure regions of hyperspace. The pressure regions of hyperspace are similar to the pressure produced by a dam holding water. The upper surface of the water, where there is no water pressure, is analogous to the black void into which our universe is expanding. In the middle of the dam, there is a region just above us having a lower water pressure which corresponds to the low density hyperspace energy. This analogy is not perfect because the many frequencies of hyperspace are quantized, as we know from quantum physics, rather than being a continuous spectrum of lower and lower frequencies down to the zero frequency of the black void.

What I claim as my invention is

1. A magnetic vortex generator which can generate negative mass according to Einstein's General Theory of Relativity, which is a tested and proven theory. As a result of this theory, it can be shown that negative mass is required to create a stable wormhole between space and hyperspace. Without the negative mass, the throat would close.

2. The generator consists of two solenoids wound with a common wire in opposite directions on two separate toroidal curved-sheet transformer laminates of differing radii. The smaller solenoid is mounted along the centerline of the larger solenoid.

3. According to Maxwell's equations, said geometrical and magnetic arrangement produces linear bucking electric fields along the centerline of said coils. Since curvature and the square of the electromagnetic fields are one and the same phenomenon according to Einstein's spacetime curvature tensor  $G=8\pi T$ , this resonance of the electric fields causes a resonance of the spacetime curvature and the opening of the wormhole.

4. Due to the fact that the magnetic flux travels within the laminations at a curvature equal to the inverse of the radius squared, each coil produces a spring constant which depends

on the current, lamination area, magnetic field strength and the individual curvature of each coil.

5. Due to the fact that the flux travels in opposite directions in each solenoid, the spring constant of the outer coil is positive, and the spring constant of the inner coil is negative. These two spring constants, one positive and one negative, add in parallel to create a negative spring constant for the generator. Because the frequency of resonance is equal to the square root of the negative spring constant divided by the negative mass, the resonant frequency is positive real.

6. This process of creating and keeping open the wormhole allows low density hyperspace energy to enter our dimension. Because the linear mass is lower, Planck's constant, equal to the Planck mass times the Planck wavelength times the speed of light, is reduced to such an extent that the electron is moved out of dimension. Because the electron and proton are one and the same particle, when considering a path through space and hyperspace, the proton is also moved out of dimension. Thus this process of moving the atom in and out of dimension using the magnetic vortex generator has the ability to create cold-welded crystals, new types of materials and new ways to cold solder one disparate material to another.

7. As a consequence of said process, highly relativistic electromagnetic fields can be created because the velocity of light has been reduced considerably. These fields then can be used to produce life in the new class of electromagnetic propulsion vehicles.

8. As a consequence of said process, refrigeration systems can be created because negative energy cools rather than heats.

9. As a consequence of said process, power supplies can be made such that a differential spacetime curvature on the ends of a carbon electrode can create a differential voltage similar to a regular chemical battery.

10. As a consequence of this process, surgery-less medical tables can be fabricated whereby tumors can be pulled directly from the patient's body.

11. As a consequence of this process, the negative mass produced by the generator can offset the mass of a spacecraft to create a mass-less, inertia-less vehicle which can accelerate at hundreds of thousands of g's.

12. As a consequence of this process, the folding space waveguide becomes a reality whereby hyperspace energy, which has a low spring constant, can be easily folded and curved using powerful, relativistic electromagnetic fields. Spacecraft will be able to teleport themselves out-of-dimension over huge distances measured in terms of light-years.

13. Because the wormhole opens up an interdimensional connection to hyperspace having a magnetic monopole, a radial magnetic field is created. As a consequence of this process, a changing magnetic monopole field crossed with a changing electric field can produce a toroidal electromagnetic flux around the circular hull of the spacecraft. As a consequence of the merger of these two fields, a spacetime curvature  $G_{zz}$  is produced over the hull of the spacecraft which creates a tension or lift force which enables the spacecraft to ascend, hover or descend.

14. An electrical system, comprised of a variable frequency generator and amplifier, an isolation transformer and voltage step-up transformer, drives a non-linear inductance which switches on and off the current in the output circuit in such a manner as to produce large voltage spikes through

magnetic vortex generator. The generator responds by producing two large negative mass spikes close to the centerline of the two coils.

15. The winding on each coil of the generator has a non-linear spacing to enhance the magnetic field and to reduce the interwinding coil capacitance.

16. The ratio of the radius of the small coil to that of the larger coil is 1/3, which is the magic ratio in physics. This creates a spring constant that is proportional to 8/9. The square of the cosine of the tetrahedral angle of 19.47° is equal to this ratio. Also the ratio of the area-to-volume ratio

of the circumscribing sphere of a tetrahedron to the area-to-volume ratio of the tetrahedron is also 1/3. And the corners of the tetrahedron touch the circumscribing sphere at 19.47°. All the large volcanoes and vortices on Earth, Mars, Jupiter, Uranus and Neptune are located at this latitude. Thus this invention is more effective in developing a wormhole because it is tuned geometrically to the tetrahedral geometry of space.

\* \* \* \* \*



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(54) **WALKING THROUGH WALLS TRAINING SYSTEM**

(22) Filed: **Jul. 14, 2004**

(76) Inventor: **John Quincy St. Clair**, San Juan, PR  
(US)

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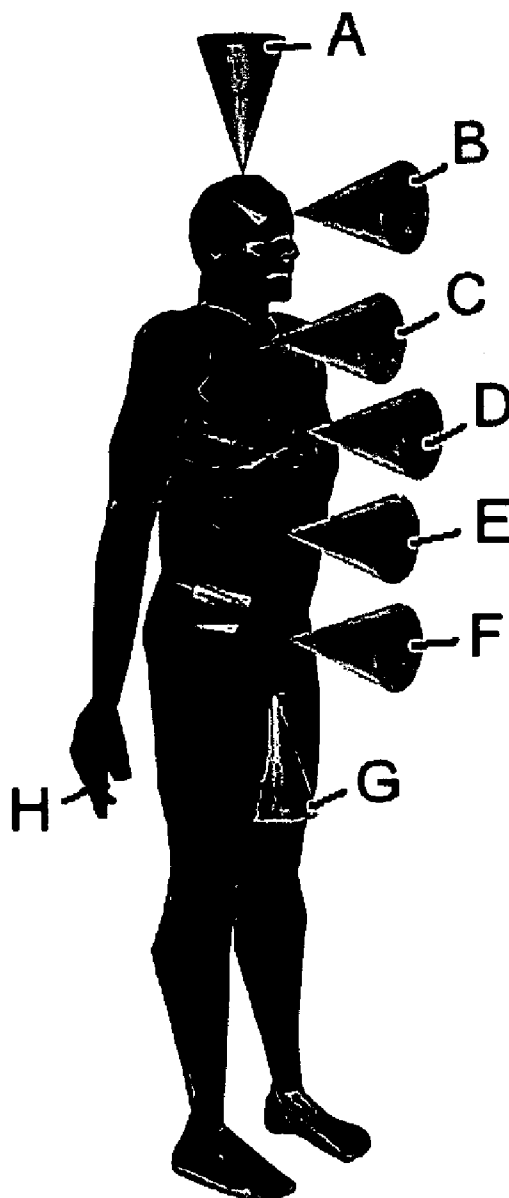
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**SAN JUAN, PR 00911 (US)**

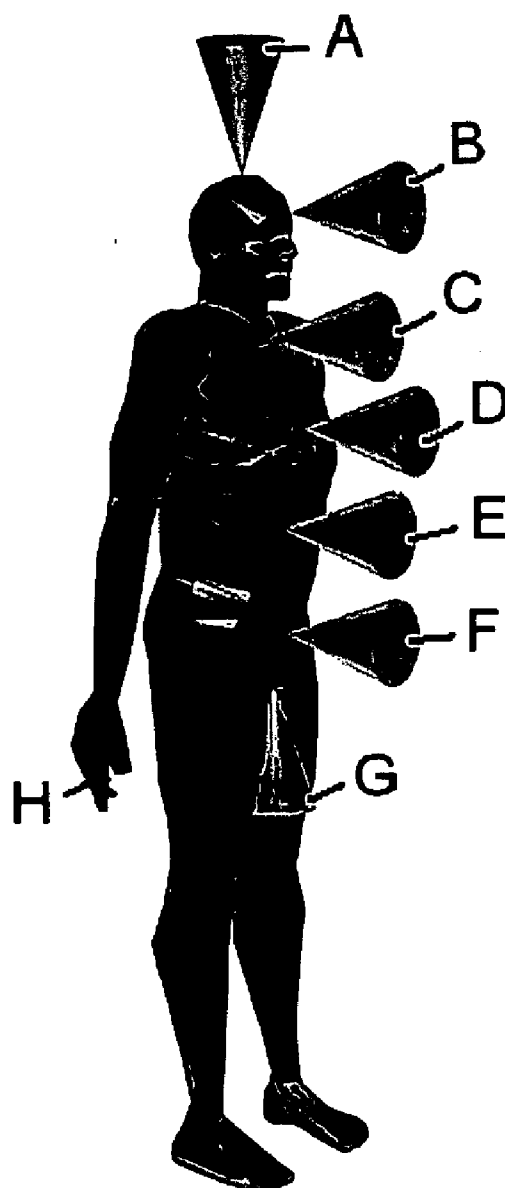
(57) **ABSTRACT**

This invention is a training system which enables a human being to acquire sufficient hyperspace energy in order to pull the body out of dimension so that the person can walk through solid objects such as wooden doors.

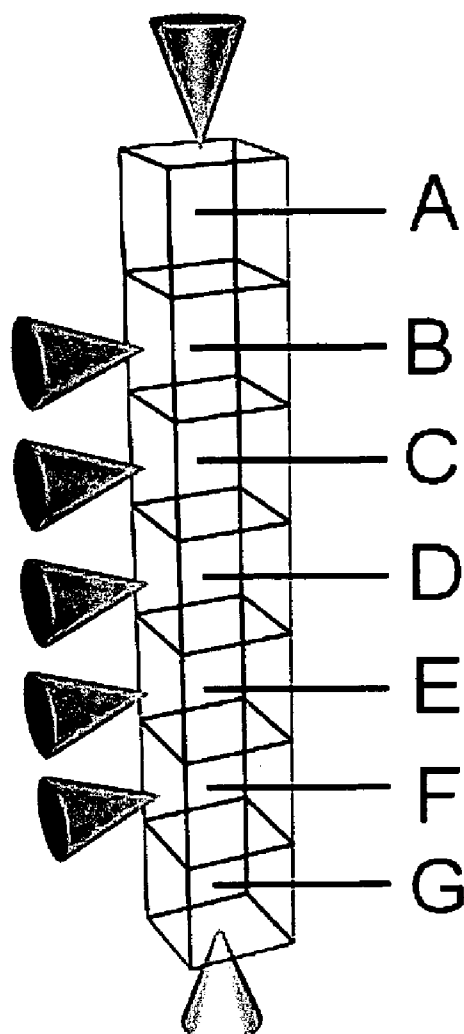
(21) Appl. No.: **10/890,635**



**Figure 1**

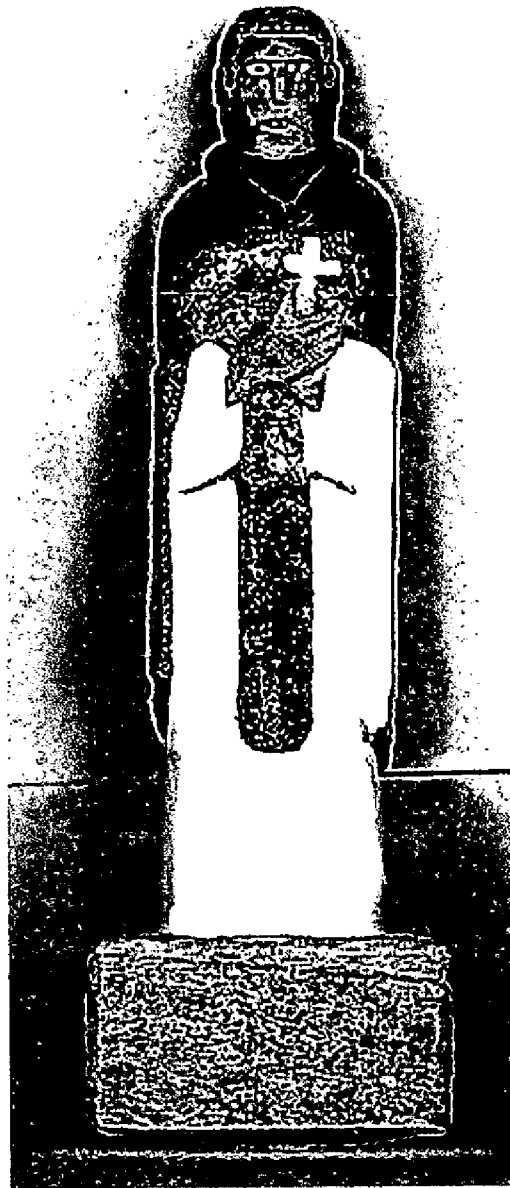


**Figure 2**





**Figure 3**



### Figure 4

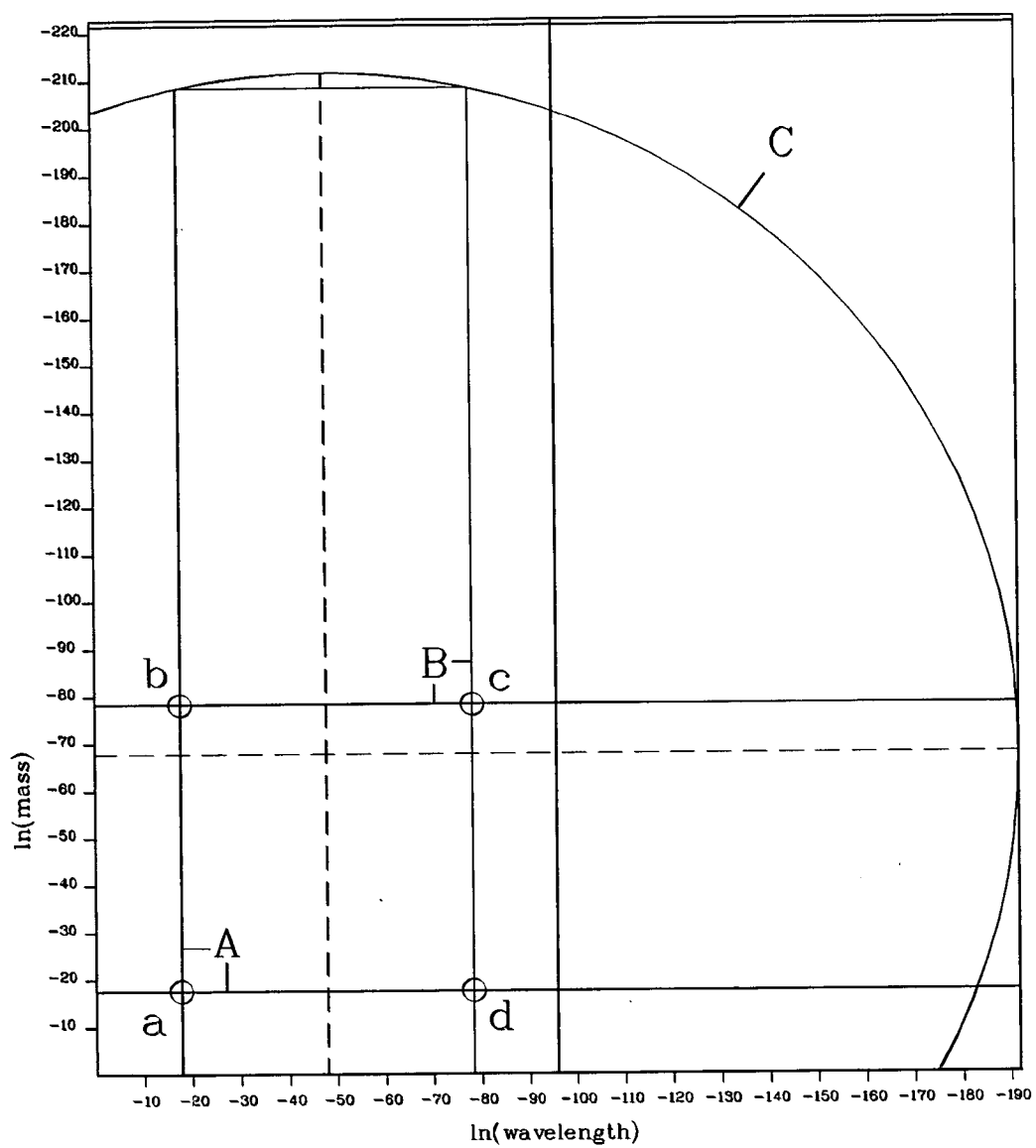


Figure 5

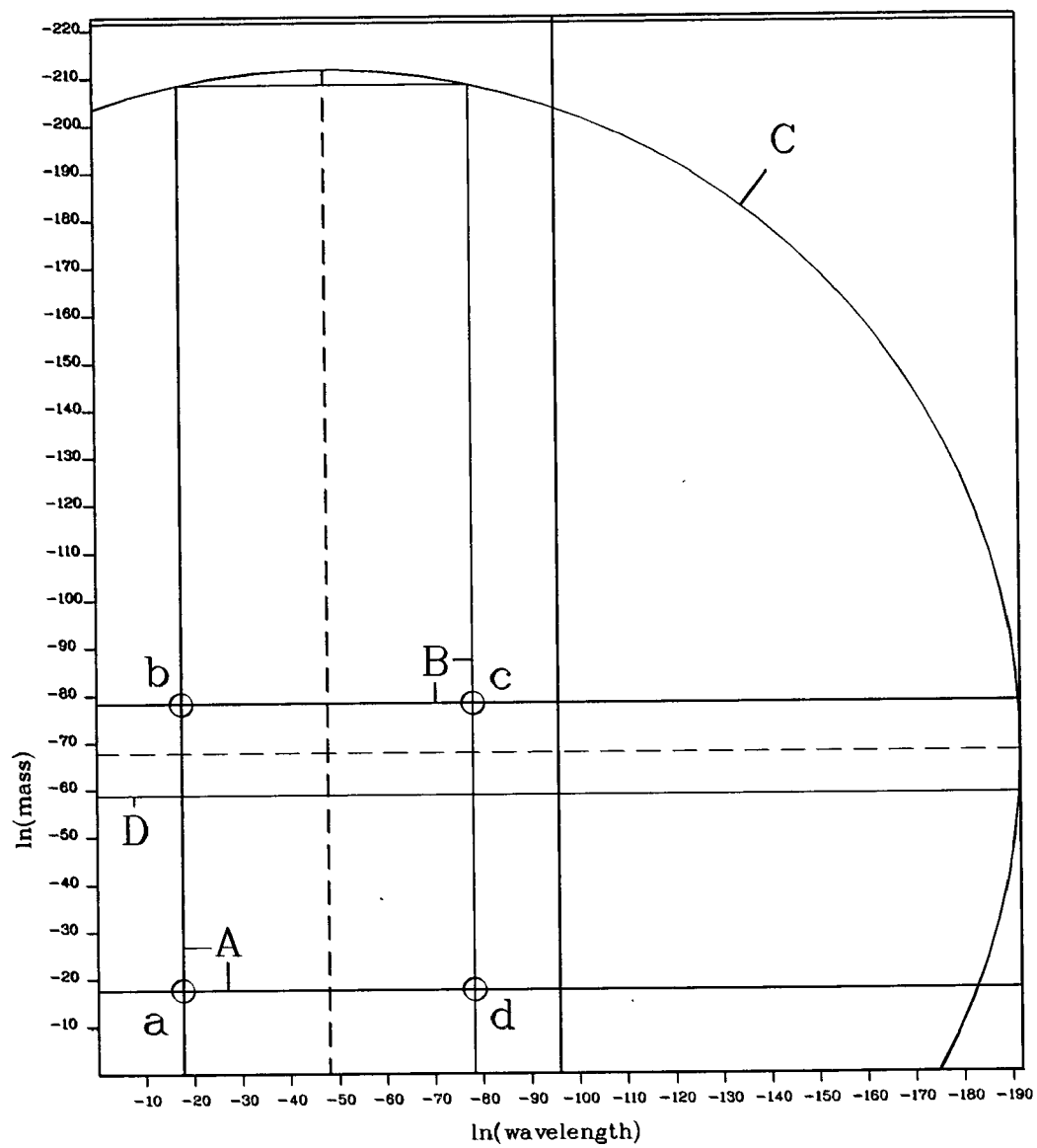


Figure 6

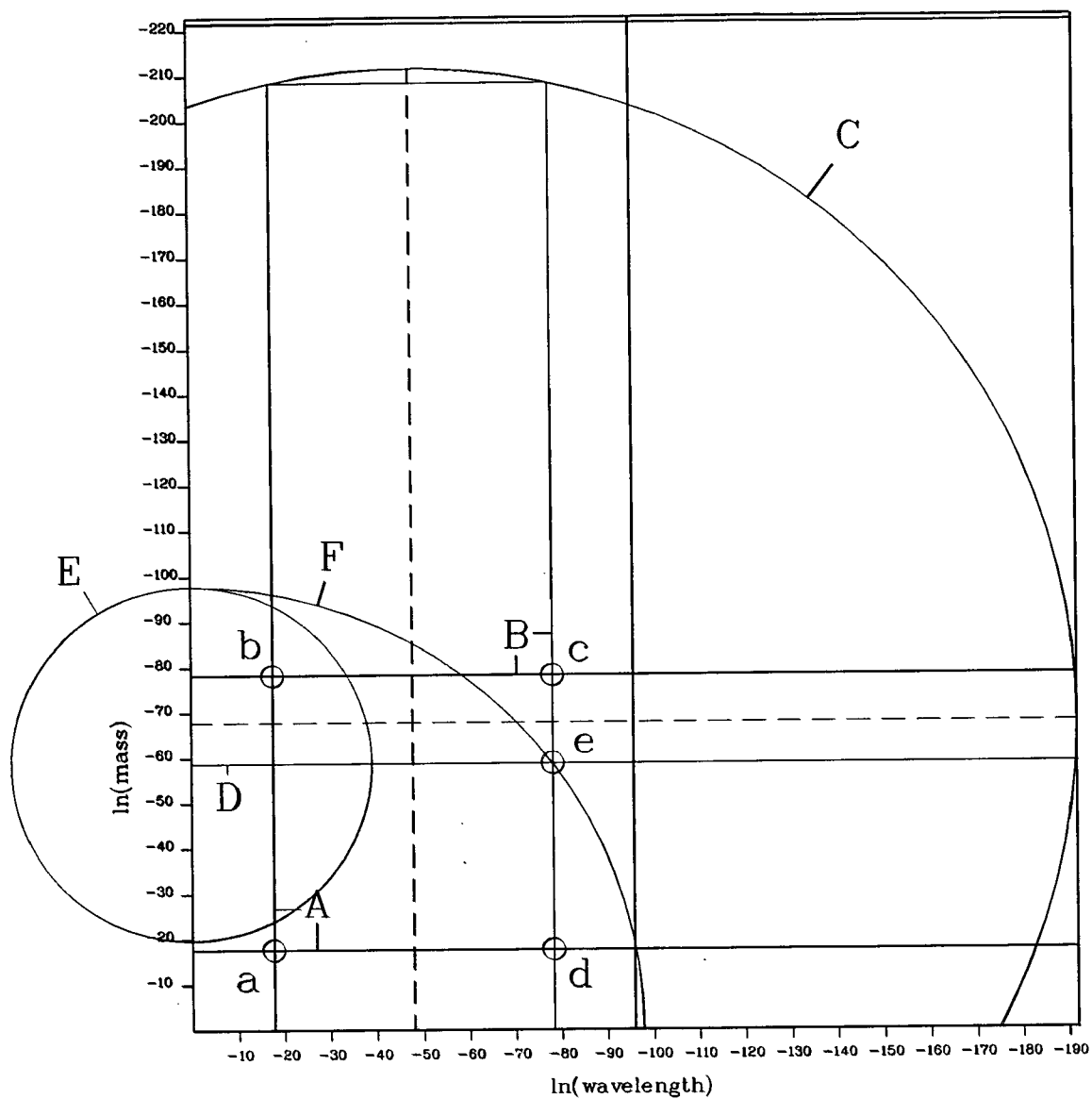


Figure 7

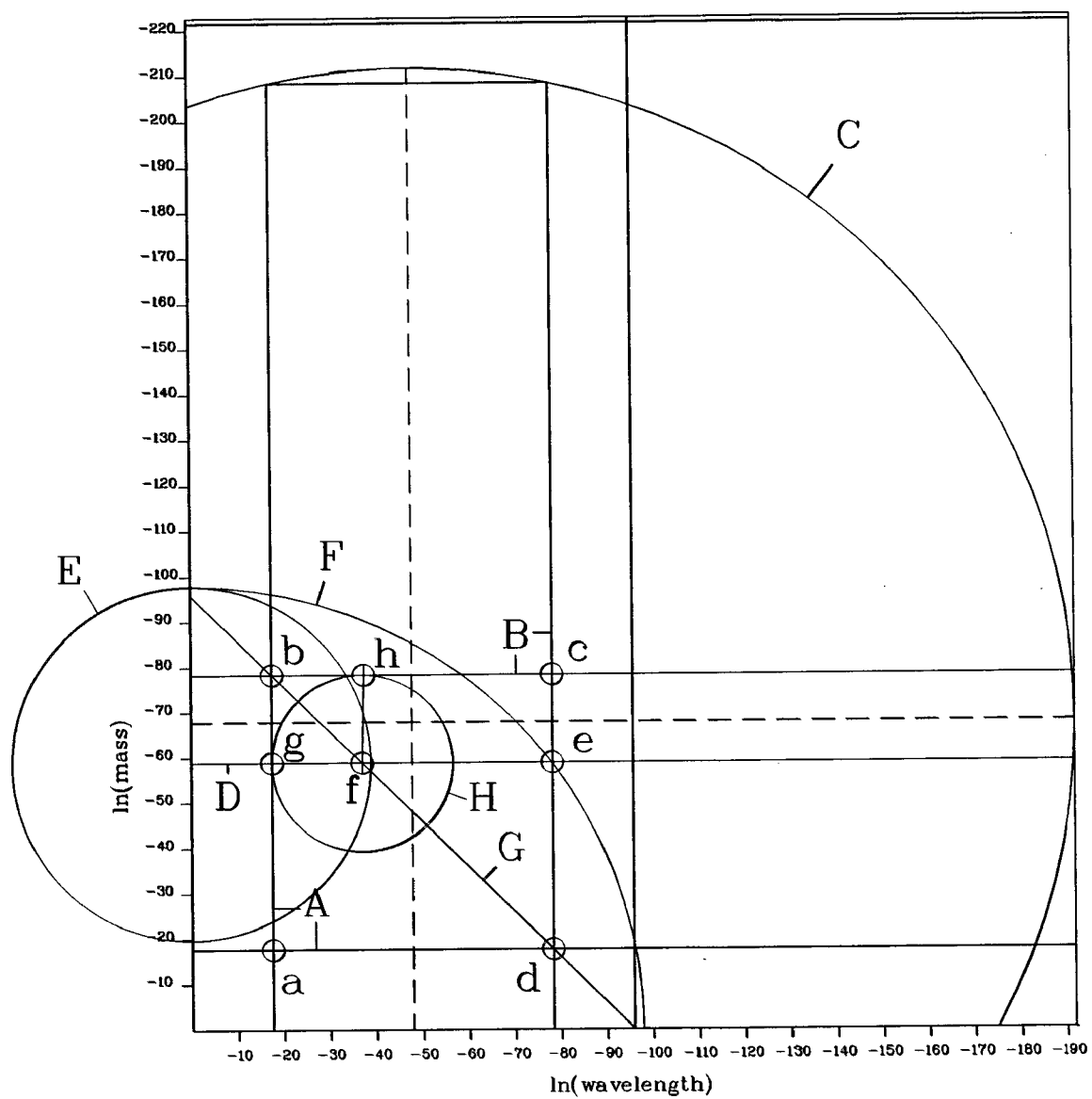
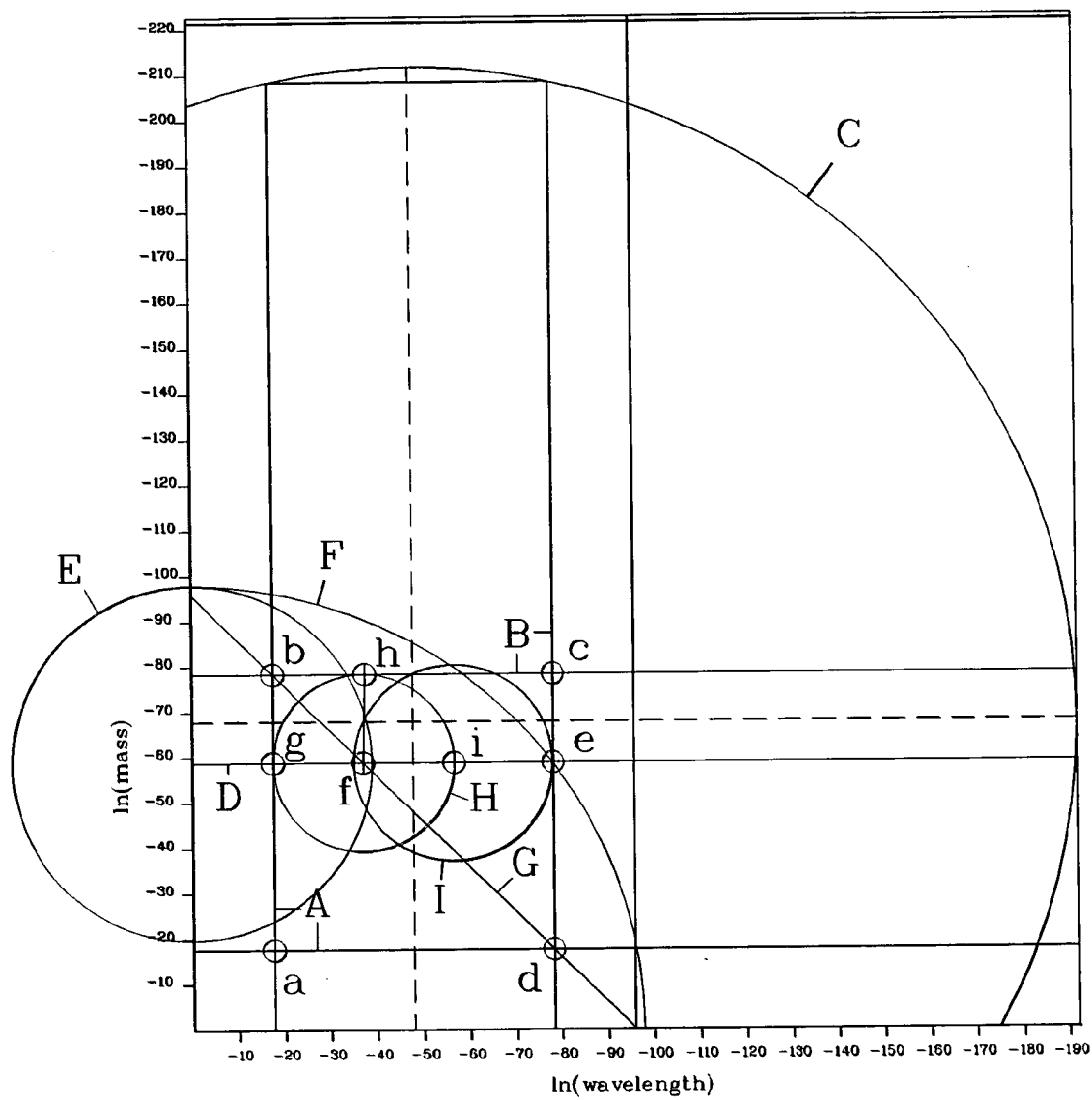
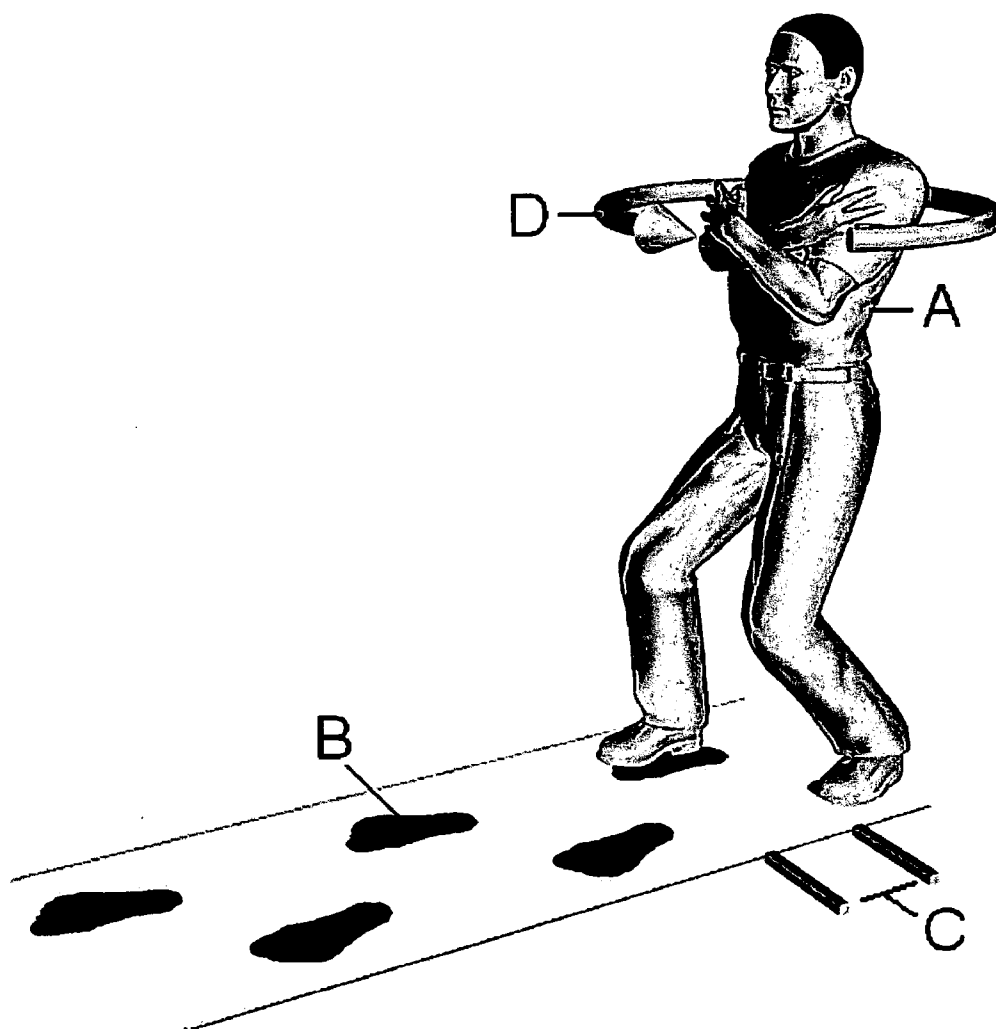


Figure 8



**Figure 9**



**Figure 10**

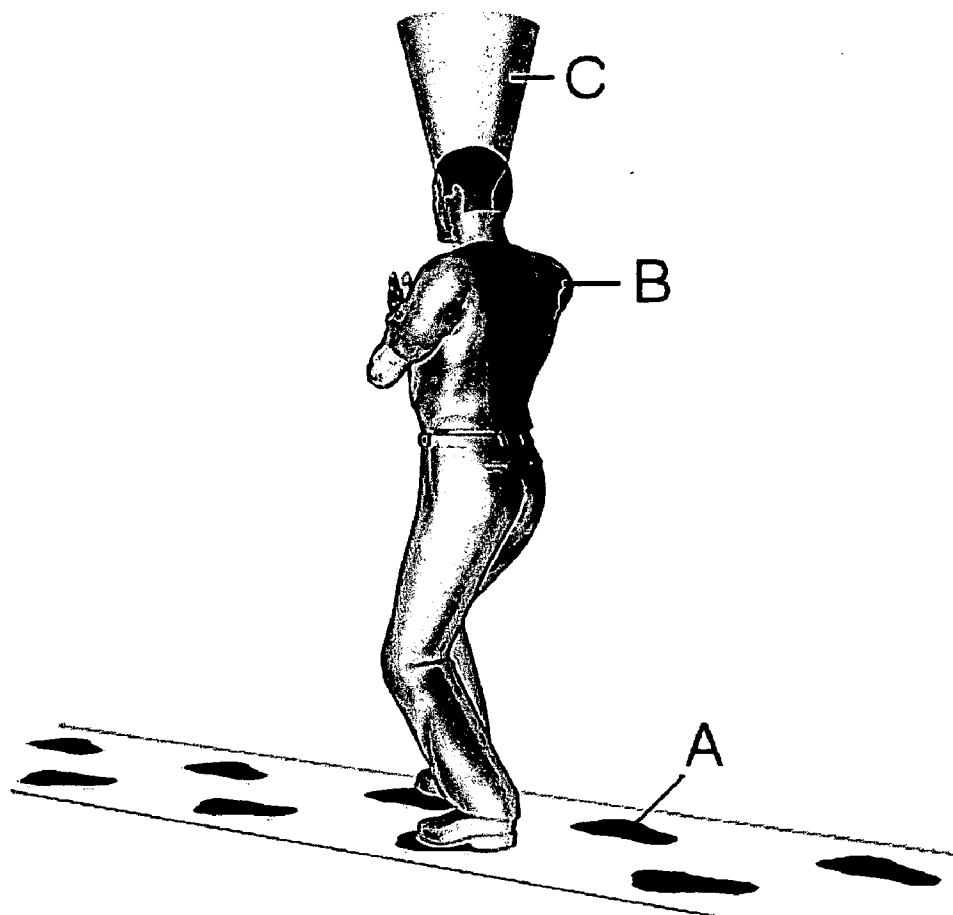




Figure 11

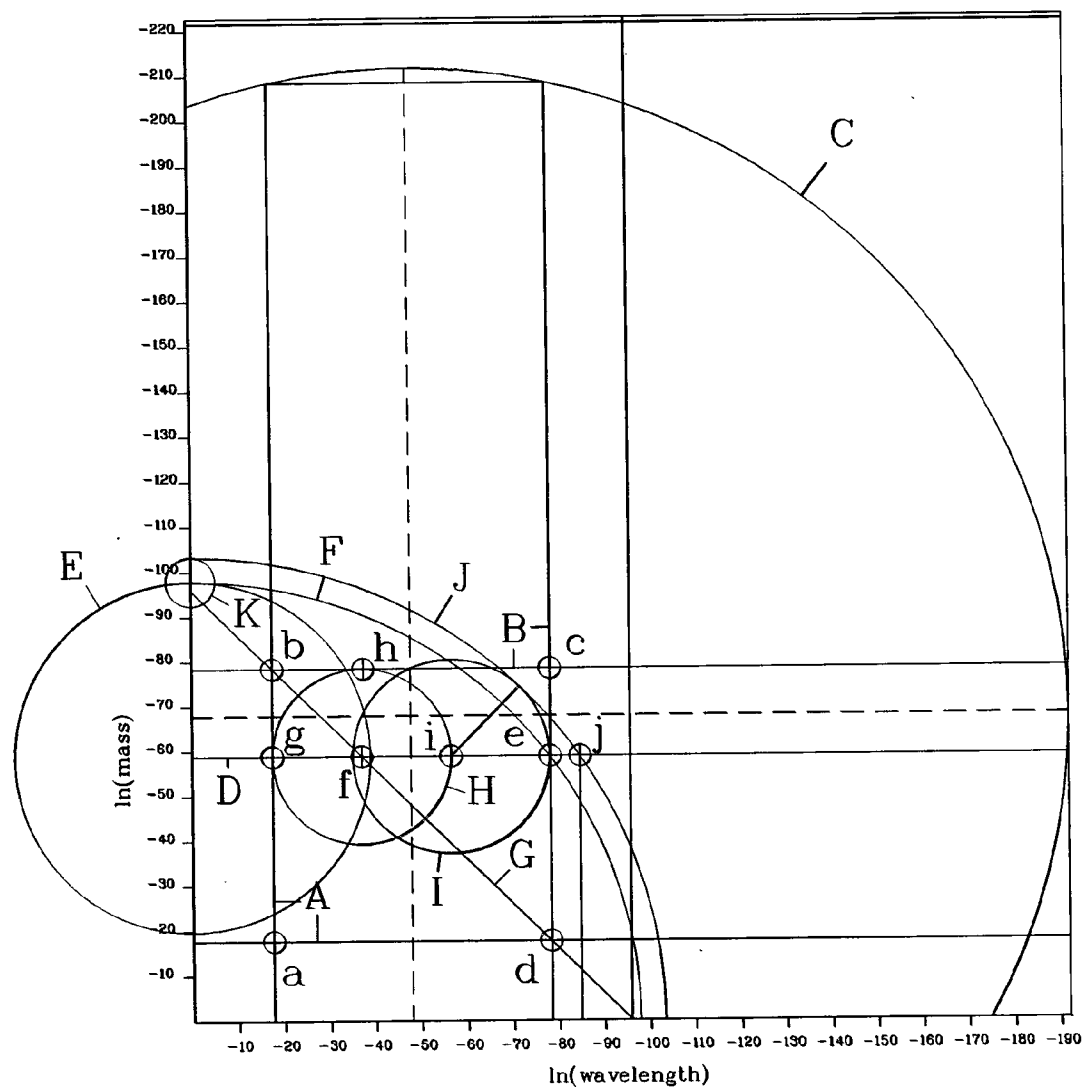




Figure 13

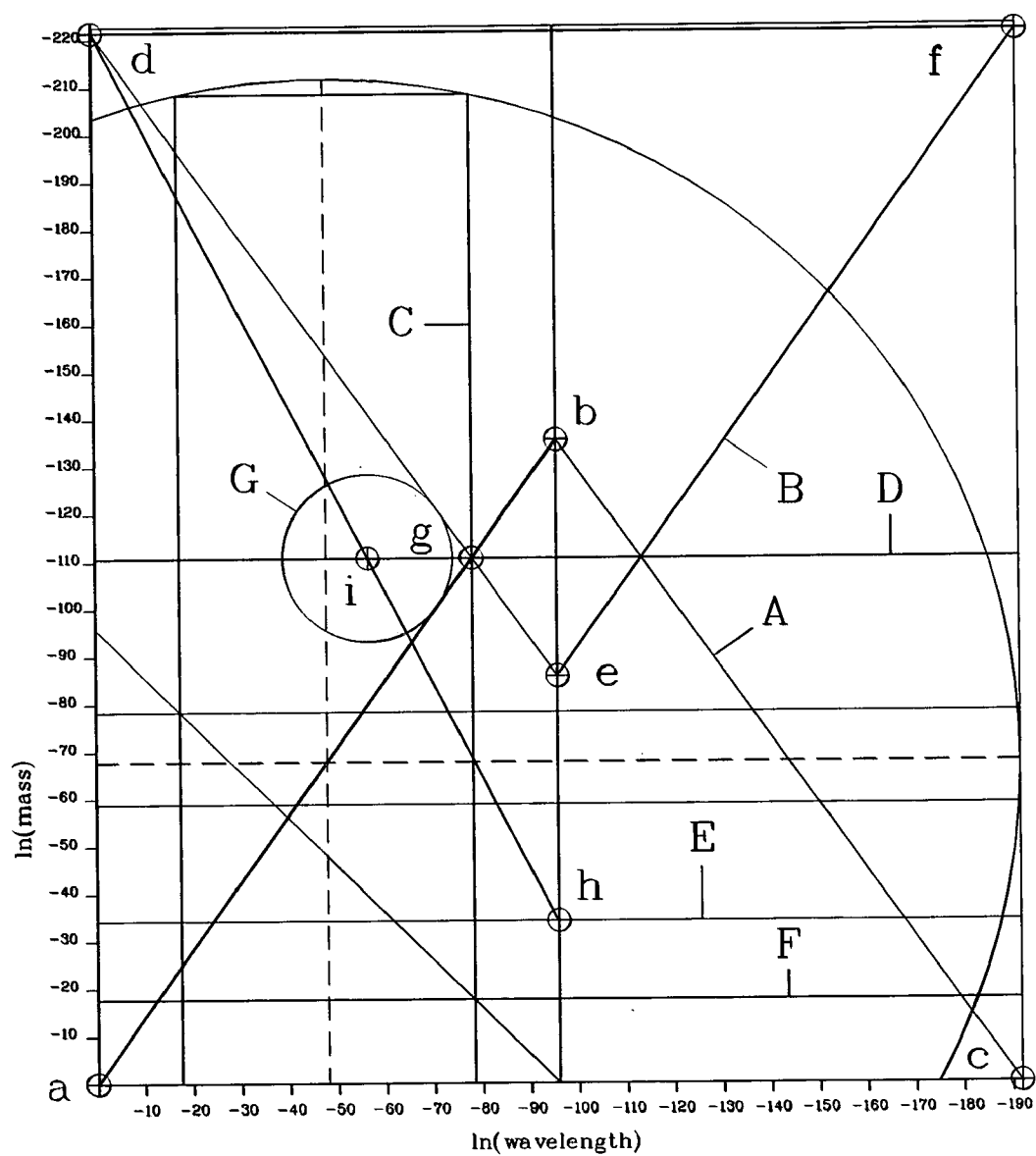


Figure 14

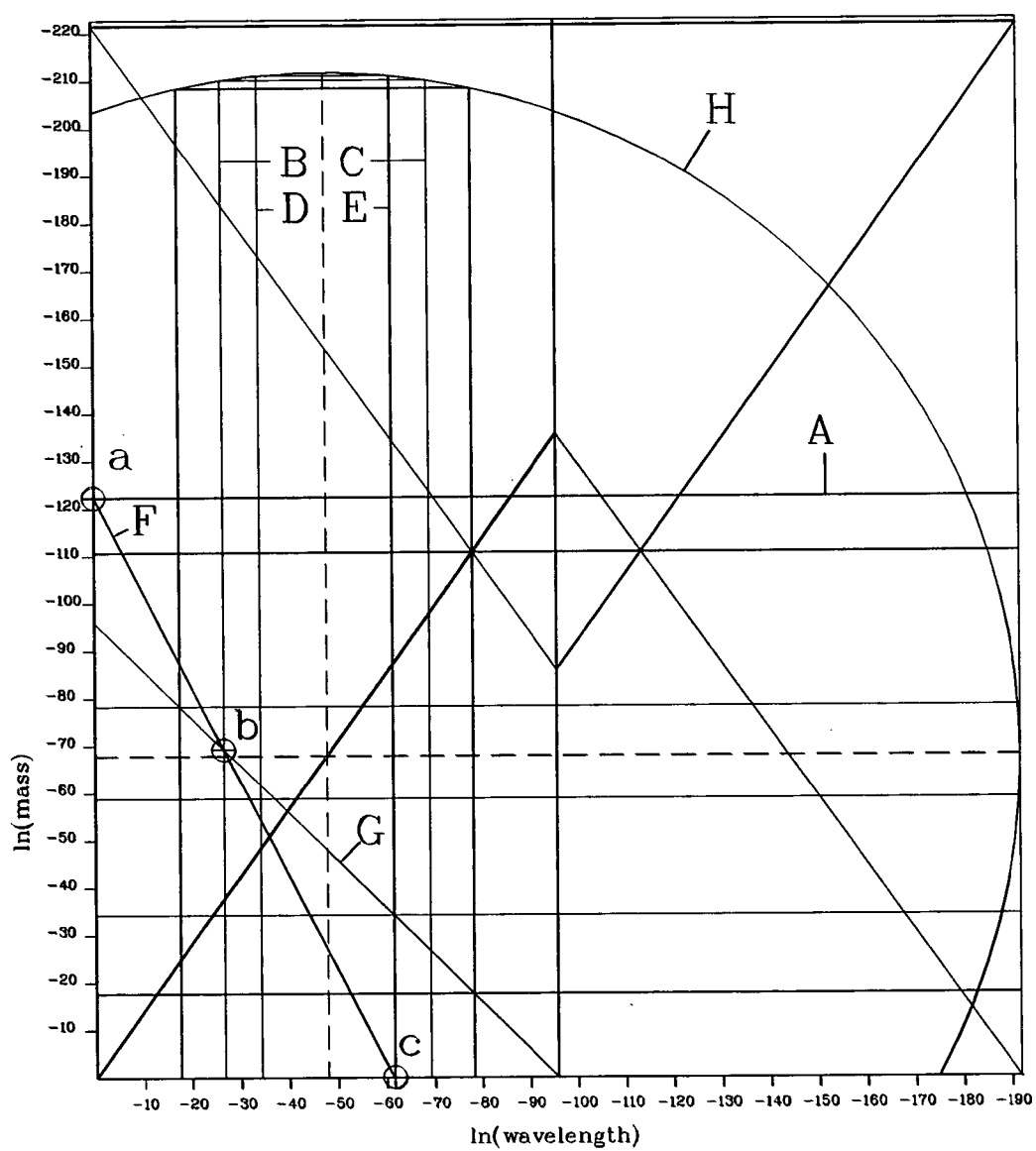
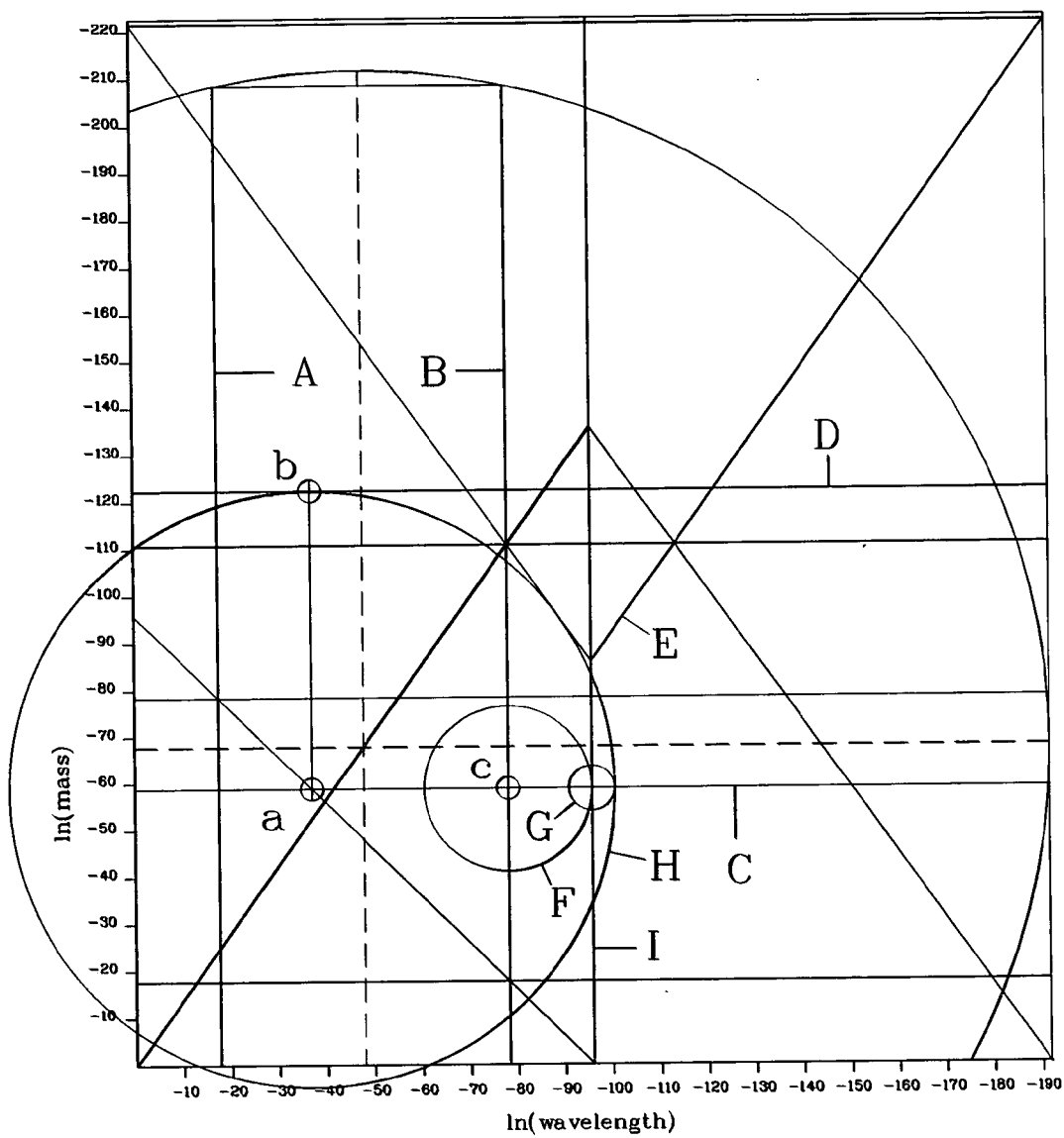


Figure 15



**Figure 16**

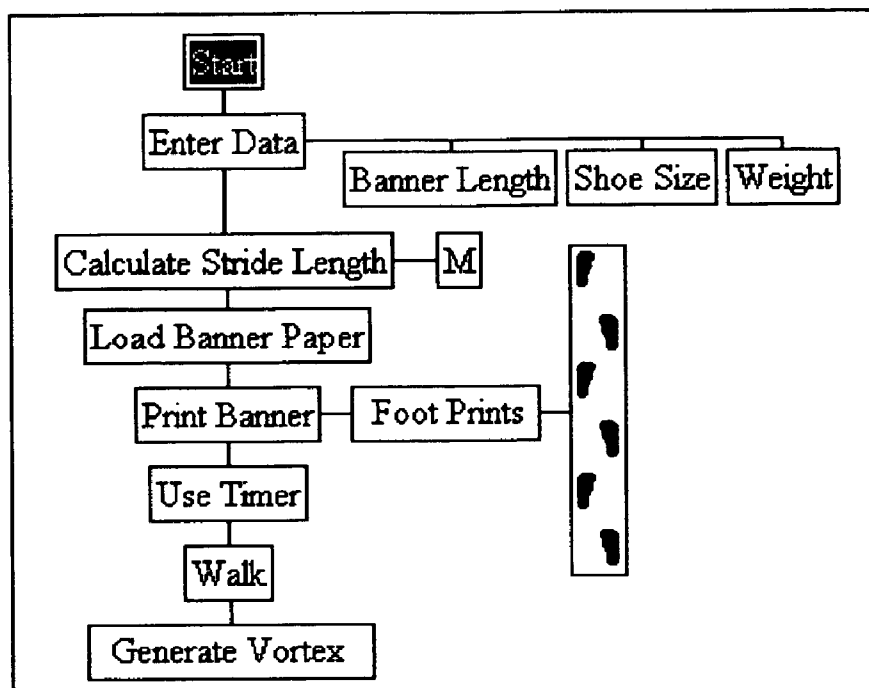
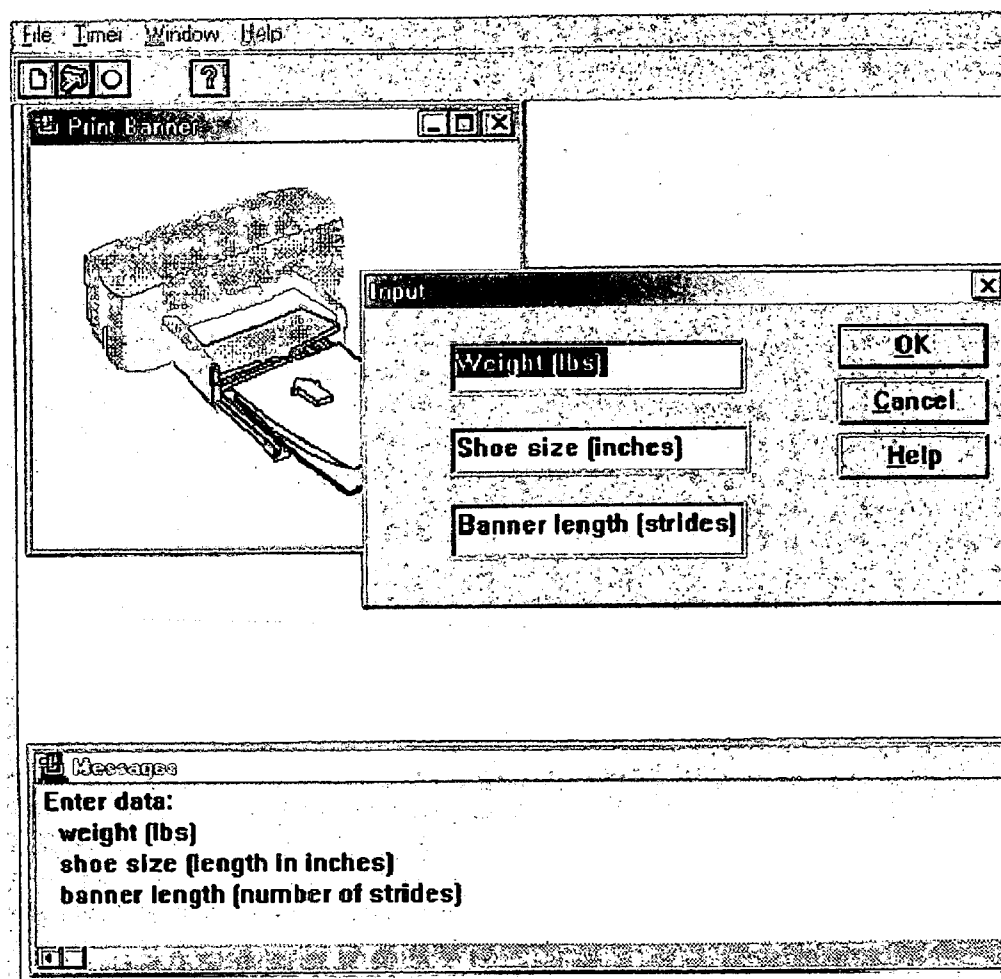
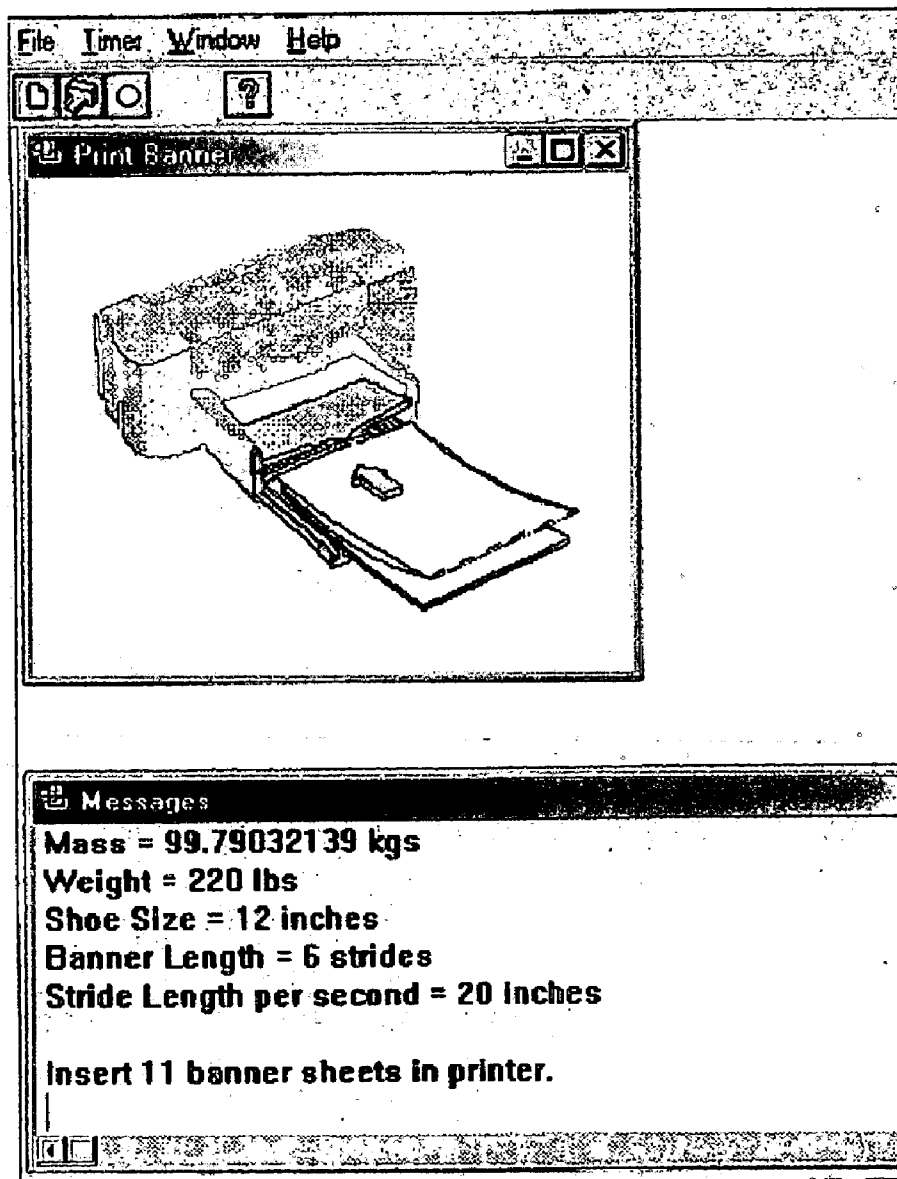


Figure 17



**Figure 18**





**Figure 19**

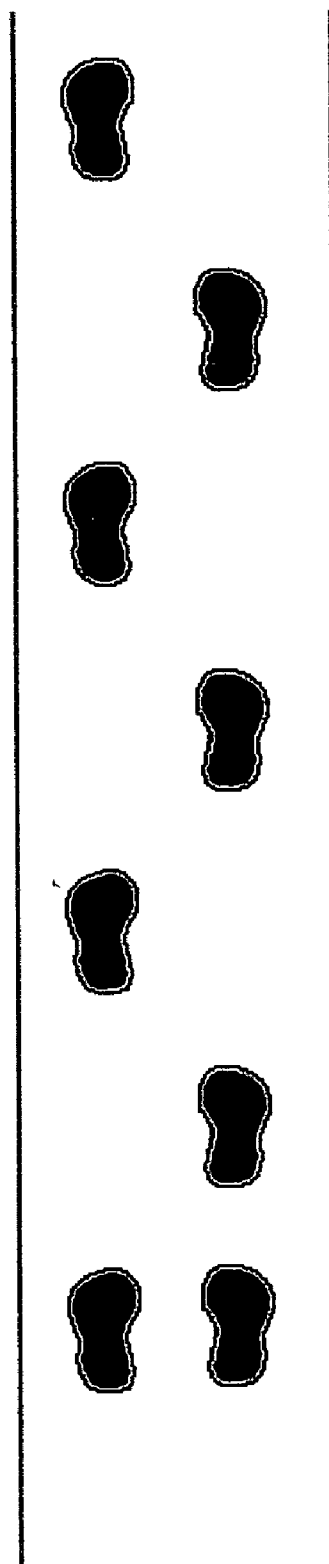
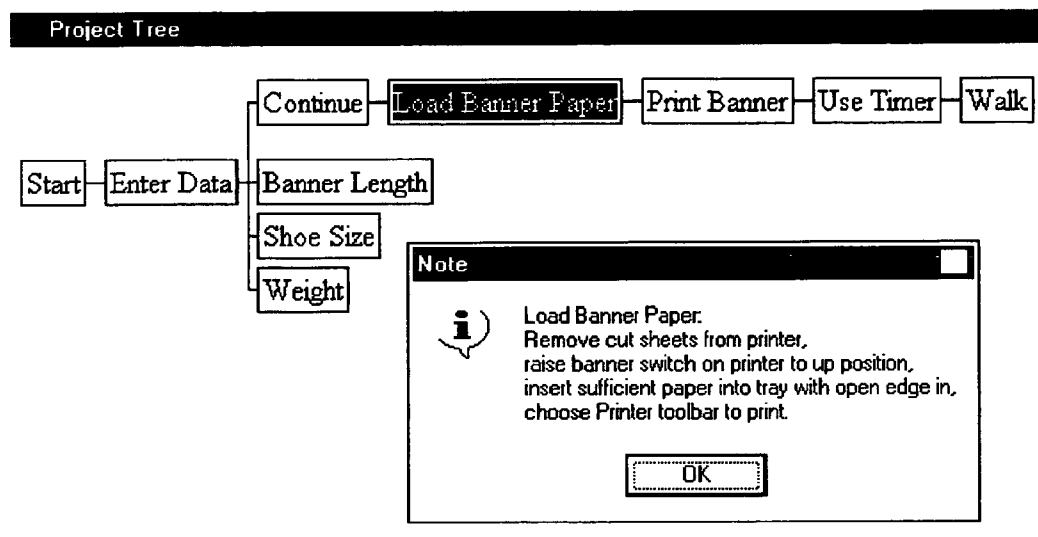


Figure 20



## WALKING THROUGH WALLS TRAINING SYSTEM

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention is a training system that enables a human being to acquire sufficient hyperspace energy in order to pull the body out of dimension so that the person can walk through solid objects such as wooden doors.

### BACKGROUND OF THE INVENTION

[0002] A human being is a hyperspace energy being living in a physical container or body that is comprised of 67% water. This high percentage of water makes this invention possible. Referring to **FIG. 1**, the hyperspace energy being receives energy from our dimension through seven vortices that run the length of the body. Each vortex connects to a separate hyperspace dimension having its own particular frequency. This arrangement allows for the development of seven modular energy components corresponding to the mind, spiritual eye, voice, body, abdomen, plasma energy ball (battery), and ground connection.

[0003] Vortex (A), known as the top vortex, supplies energy to the mind and provides a channel of communication to other entities in the universe. This channel has been tested up to 100,000 light years which is the diameter of the galaxy.

[0004] Vortex (B), known as the spiritual eye, has a hollow cone-like appearance surrounded by white, misty, low-density hyperspace energy. Because the eye is modular, the mind can project it to vast distances, a process known as remote viewing.

[0005] Vortex (C), known as the voice and hearing module, can also be projected to enormous distances in order to communicate verbally with other entities. Using the proper remote viewing instruments, it is possible to project both the eye and verbal modules to see and talk at the same time.

[0006] Vortex (D), known as the heart vortex, provides protective energy to the upper internal organs, arms and hands.

[0007] Vortex (E) provides protective energy for the lower organs such as the intestines, liver and kidneys.

[0008] Vortex (F), known as the battery of the body, consists of an orange-colored plasma energy ball about one to two inches in diameter. The body becomes paralyzed if this ball is removed from the body. When the hyperspace energy being leaves the body, the vortices close and the battery takes over in order to keep the body functioning. This vortex also plays a role in the creation of the astral energy baby that attaches to the fertilized egg.

[0009] Vortex (G) is the ground vortex which rotates in the counter-clockwise direction in order to provide an energy ground for the electrical circuit. All the other vortices rotate in the clockwise direction as seen from the front such that energy flows into the vortex according to the right-hand rule of physics.

[0010] Vortex (H) is the hand vortex which rotates counterclockwise on the right hand and clockwise on the left hand as seen looking at the palm. Thus there is a rotating flow of hyperspace energy between the two hands when the palms are facing each other.

[0011] Referring to **FIG. 2**, each vortex feeds energy into its own hyperspace module shown by the lettered box. In terms of quantum mechanics, each box is actually a potential energy well in which each module develops separately. At the time of death of the body, these modules are joined together as a single energy being. The process is powered by the plasma energy ball battery which also contains the logical instructions for assembly.

[0012] Different people, as tested by the pendulum on the hand vortex, have different vortex sizes. Three people were tested. The first person had almost no rotational movement showing very little energy. The second person had a vortex radius of one inch. Another had a vortex radius of four inches which covered his entire hand. The latter also has the ability to lift another human being, lying prone on a table, off the table by flowing low-density hyperspace energy into the person through the hand vortices. He has also experienced walking through a solid wooden door with a dog at his side. What this means is that there is a way, as described in this invention, of creating large energy vortices which will enable a person to acquire sufficient energy to walk out of dimension through solid objects such as wooden doors.

[0013] Researching the historical records, referring to the statue in **FIG. 3**, a humble black Catholic Dominican friar of the Santo Rosario Convent, by the name of San Martin de Porres, living in Peru in the 1500's, also developed this ability to walk through doors. For his beatification, many witnesses came forward to recount his extraordinary abilities. For example, a witness, who worked in the Convent, went to the cell of San Martin to ask for something to eat. When he reached the cell, he saw San Martin leaving with some medications apparently to heal someone sick. The witness waited by the open door of the cell for his return. After having waited awhile without being distracted by anything else, he saw said venerable brother fray Martin come out from his cell from the inside and call him by name. The witness was terrified, not understanding how this was possible.

[0014] The woman who gave me the statue told me that he would walk miles and miles each day to visit the poor. The task of walking means that there is a velocity involved. Because the body has mass, then there is a mass times a velocity, or momentum, involved in this ability. Notice also that the statue shows him walking with his right arm crossed over his left arm in the form of an X.

[0015] What this walking momentum means in terms of physics is given in the following analysis. The human body consists of 67% water. A water molecule consists of two hydrogen atoms and one oxygen atom having the atomic formula  $H_2O$ . The atomic weight of one atom of hydrogen is 1.008 awu. The atomic weight of one atom of oxygen is 16.000 awu. The molecular weight of one atom of water is therefore:

Weight of two atoms of hydrogen $2 \times 1.008 \text{ awu} =$	2.016 awu
Weight of one atom of oxygen $1 \times 16.000 \text{ awu} =$	16.000 awu
	18.016 awu

The formula weight is just the atomic weight expressed in grams. Thus the formula weight of water would be 18.016

grams or 0.018016 kilograms. According to Avogadro's law, the formula weight contains  $N=6.02 \times 10^{23}$  molecules. Thus the mass of one water molecule is the formula weight divided by the number of molecules:

$$\text{mass} = \frac{.018016 \text{ kg}}{N} = 2.99269103 \cdot 10^{-26} \text{ kg}$$

$$\ln\left(\frac{\text{mass}}{1 \text{ kg}}\right) = -58.77103943$$

[0016] According to Einstein's Special Theory of Relativity, energy is equal to the mass times the speed of light squared. The energy of a photon is equal to Planck's constant  $h$  times the frequency  $f$  of the photon. Equating these two energies shows that

$$E = mc^2 = hf = h \frac{c}{\lambda} = \frac{h c^2}{\lambda}$$

$$\Rightarrow m\lambda = \frac{h}{c}$$

$$\Rightarrow \ln(m) + \ln(\lambda) = \ln\left(\frac{h}{c}\right) = \text{base} = -95.91546344$$

which says that the natural logarithm of the mass plus the natural logarithm of the wavelength is equal to the natural logarithm of Planck's constant divided by the speed of light  $c$ , known as the base constant in the tetrahedron diagram. This diagram plots the mass versus wavelength in natural logarithms. Notice that the left hand side of the equation is the sum of mass and wavelength, so the right hand side must also be the same.

$$\ln\left(\frac{h}{c}\right) = \ln\left(\frac{\Omega\Lambda}{c} \frac{2\pi\Lambda}{c}\right) = \ln(\Omega\Lambda) + \ln(2\pi\Lambda)$$

where  $\Omega\Lambda$ , known as the Planck mass, is the linear mass  $\Omega$  of the universe times the bottom dimensional limit of the universe  $\Lambda$ , and  $2\pi\Lambda$  is the bottom dimensional wavelength, known as the Planck wavelength. That is, our dimension is bounded by the Planck box having sides Planck mass and Planck wavelength. These boundaries have values:

$$\ln(\Omega\Lambda) = -17.64290101$$

$$\ln(2\pi\Lambda) = -78.27256243$$

[0017] Referring to FIG. 4, these two lines are plotted on the tetrahedron diagram. The Planck mass line (A) reflects off the sphere (C) and returns as the Planck wavelength (B) which shows the dual nature of quantum physics. This creates the Planck box (a,b,c,d) which is the boundary of our dimension.

[0018] Referring to FIG. 5, the mass of the water molecule is plotted as horizontal line (D) on the diagram. The energy of the water molecule is the mass times the speed of light squared.

$$E = mc^2$$

$$\ln(c) = 19.51860099$$

$$\ln(mc^2) = \ln(m) + 2 \ln(c)$$

[0019] Referring to FIG. 6, a circle (E), having a radius equal to the speed of light squared, centered on the mass of the water molecule at the vertical axis, generates a circle (F), centered at the origin, that intersects (e) the mass of the water molecule at the Planck wavelength. That is, this intersection point sits right on the Planck box boundary between space and hyperspace. The radius of circle (F) is actually the mass of the water molecule divided by the speed of light squared.

$$E = \frac{m}{c^2} = m$$

$$\Rightarrow \frac{1}{c^2} = 1$$

$$\Rightarrow c = 1 \frac{\text{meter}}{\text{sec}}$$

$$\ln(c) = 0$$

Taking the positive square root, the speed of light is one meter per second at the Planck boundary. The experiments with brain hemisphere resonance show that the resonant frequency of the human energy field is between 1 Hz to 5 Hz which is well below the hearing threshold of 20 Hz. Because the traveling wave has a wavelength of 0.3048 m and the speed of light is unity at the boundary, the frequency should be

$$f = \frac{c}{\lambda} = \frac{1 \frac{\text{m}}{\text{sec}}}{.3048 \text{ m}} = 3.28 \text{ Hz}$$

which is within the middle of the experimental male range. At this resonant frequency, the human energy being pops out of the body. This represents only a first stage in the development of the energy being. But what is really wanted is to have both the physical body and the energy field move out of dimension together as San Martin did.

[0020] Referring to FIG. 7, the 45° base line (G) is added to the diagram. Notice that the Planck mass intersects (b,d) the Planck wavelength on this line because they sum to the base constant. The mass of the water molecule crosses this line at point (f). A circle, centered (f), with a radius equal to the speed of light, is tangent to the Planck wavelength (h) and the Planck mass (g). Since mass times velocity is momentum, the diagram says that the momentum of the water molecule is tangent to the boundaries of the Planck box which separates space from hyperspace. In order to get to point (e) from the momentum of the water molecule, a second circle is added to the momentum.

[0021] Referring to FIG. 8, a circle (I), centered on the water molecule mass at the speed of light circle (i), is made tangent to the Planck wavelength at point (e). The momentum  $M$  of space is equal to the Planck mass times the Planck scale times the speed of light. At point (e), the speed of light

is unity, so that the momentum is just the Planck mass in momentum units:

$$M = \Omega \Lambda c = 2.176634194 \cdot 10^{-8} \text{ kg} \frac{m}{s}$$

Circle (I) has a radius equal to

$$\text{ratio} = e^{21.572952} = 2338912700$$

Therefore the walking momentum in order to get to point (e) is the momentum of space M times this ratio

$$M_w = M \cdot \text{ratio} = 50.909573606 \text{ kg} \frac{m}{\text{sec}}$$

The stride length L per second that a person of mass W has to walk is the walking momentum divided by the mass W times a period T of one second

$$L = \frac{M_w}{W} T$$

For a person with a mass W of 99.79 kg (220 pounds), then the stride length L is 20.08 inches or one foot and eight inches. The person has to walk this length in one second on each foot.

[0022] Looking at the statue of San Martin, his arms are crossed over each other. The vortex of the right hand points backward, and the left hand vortex points forward due to the reversed rotation. Referring to FIG. 9, this creates a rotational energy channel (D) around his body (A). The stride length (C) is calculated according to the body mass, and then a banner printout is made showing where the footprints (B) are to be placed each second. The question is: "What happens when one walks the walk?"

[0023] On the very first experiment, referring to FIG. 10, what happens is that, after taking only six strides on the banner printout (A), a huge spinning vortex (C) develops over the top of the head and the vertex locks onto the heart vortex in the center of the chest (B). In everyday life, this vortex is not created because normal walking is much faster and the hands are held at the side of the body. The energy rush through the pineal gland is so intense that one feels immediately sleepy and starts yawning excessively due to the increased flow of melatonin.

[0024] After practicing with the banner printout, long walks were made through the park. In this case, a vertical white line rotated around a vertical axis located about six feet perpendicular to the path on the right side of the body. When the walking speed was correct, this white line would lock onto the centerline of the body. Speeding up or down caused the white line to lose synchronization and rotate away. This white line is related to the ability to levitate the body. San Martin had so much energy that, according to witness testimony, he could float horizontally in the air with his head resting against the bowed head of Christ on a carved wooden cross. Thus San Martin's energy sources were

channeling energy from Christ, collective broom energy as described in a separate patent application, and the walking momentum vortex energy.

[0025] During the early part of the 20th century, a man's parents were lying in bed dying of tuberculosis. With their permission, he placed a weighing scale under each of their beds. When they passed away, he found that each scale registered a loss in weight of 2.5 ounces. This is equivalent to 0.071 kg, which is the mass of the human energy being.

[0026] After conducting a number of experiments with water vortices draining from a cylindrical tank, it can be stated from Bernoulli's theorem that the potential energy plus the kinetic energy is a constant

$$gz + \frac{1}{2}mv^2 = \text{const}$$

The shape of the inner surface of the water circulation has a velocity proportional to the inverse of the radius, so the shape of the surface is

$$(z - z_0) = \frac{k}{r^2}$$

which says that the height of the vortex is proportional to the inverse of the square of the radius.

[0027] The hand vortex area ratio between the second test subject and the third test subject is equal to the square of their radii:

$$\text{ratio} = \frac{(1 \text{ in})^2}{(4 \text{ in})^2} = \frac{1}{16}$$

Because the speed of light at the boundary was determined to be one meter per second, the energy of the third test subject is

$$E = \left( \frac{.071 \text{ kg}}{16} \right) \left( \frac{1 \text{ m}}{\text{sec}} \right)^2 = 4.4375 \cdot 10^{-3} \text{ joule}$$

$$\ln(E) = -5.417664124$$

[0028] Referring to FIG. 11, a circle (K), having this radius, is added to the energy of the water molecule (E), to produce augmented energy circle (J). This circle (J) intersects the mass of the water molecule outside the Planck box at point (j). This means that the increased hyperspace energy moves the water molecule, and hence the body, out of dimension. Furthermore, circle (J) is tangent to the walking momentum ratio circle (I) which keeps the geometry locked together.

#### SUMMARY OF THE INVENTION

[0029] It is the object of this invention to create a training system that allows a person to develop the ability to walk

around out of dimension, passing through solid objects. This invention is based on one of the most remarkable relationships between the water molecule and the boundary between space and hyperspace. The mass of the water molecule is equal to the energy of the water molecule at this boundary. Because the body is composed of 67% water, the body sits on the boundary such that any additional increase in energy would move the body out of dimension into hyperspace. Because human beings are actually hyperspace energy beings living in physical bodies, the additional energy required to move the body out of dimension comes from increasing the energy of the hyperspace being. One source of this energy comes from walking cross-handed at the proper velocity in order to generate a large hyperspace energy vortex that flows energy into the potential wells of the hyperspace being. This increased hyperspace energy will then allow the person to walk around out of dimension through solid wooden doors. Because the door and the person are in two slightly different dimensions at the same moment, it appears that the person is walking through the door. After passing through the closed door, the person then returns to our dimension and emerges in the interior of the closed-door room.

[0030] This technique can be used in reverse to heal an infected hand instantaneously. A salve made from the St. Mary's herb is applied to the skin of the infected hand. The hyperspace energy then flows through the right-hand vortex such that the infected hand and the salve are taken slightly out of dimension. What happens is similar to when a short piece of straw is embedded in a hard wooden telephone pole as a tornado passes over the pole. The straw and pole are taken out of dimension such that they briefly merge together. As the tornado moves on, both objects come back to dimension merged together. Thus the salve (straw) is merged with the bacteria (pole) in hyperspace such that the bacteria is killed instantly. Removing the hand vortex brings the infected hand back into dimension cured.

[0031] Based on this information and the results of many experiments, this invention creates a large vortex by walking at a certain velocity with the hands crossed over the chest. The proper walking momentum is created by a computer program that inputs the person's weight, shoe length, and the number of strides to be taken. The program then prints out a banner showing the footprints where the person has to step each second. When a person obtains sufficient energy from these methods, the person is then tuned to the subspace geometry of the universe as will be shown using the tetrahedron physics diagram.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

- [0032] FIG. 1. Energy vortices of the human body.
- [0033] FIG. 2. Seven potential wells fed by the energy vortices of the body.
- [0034] FIG. 3. Carved wooden statue of San Martin de Porres who could walk through solid wooden doors.
- [0035] FIG. 4. Tetrahedron diagram showing boundaries of the Planck box of dimension.
- [0036] FIG. 5. Tetrahedron diagram showing mass of water molecule.
- [0037] FIG. 6. Tetrahedron diagram showing water molecule energy and mass are equal at the Planck box boundary.

[0038] FIG. 7. Tetrahedron diagram showing that water molecule momentum is tangent to the boundaries of the Planck box.

[0039] FIG. 8. Tetrahedron diagram showing the momentum ratio required to reach the Planck wavelength boundary from the water momentum.

[0040] FIG. 9. Perspective view of crossed-hand momentum walking using banner printout.

[0041] FIG. 10. Perspective view of vortex generated by momentum walking.

[0042] FIG. 11. Tetrahedron diagram showing how additional hyperspace energy supplied to the potential wells of the hyperspace energy being enables the human body to be pulled out of dimension.

[0043] FIG. 12. Tetrahedron diagram showing the inverted tetrahedrons whose crossing represents the merging of two worlds between space and hyperspace.

[0044] FIG. 13. Tetrahedron diagram showing that the proton wavelength is determined by the Planck mass tangent to the inverted tetrahedrons.

[0045] FIG. 14. Tetrahedron diagram showing that the mass of the universe determines the electron and proton elementary particles.

[0046] FIG. 15. Tetrahedron diagram showing that momentum walking together with the increased energy of the hyperspace energy being is tangent to the mass of the universe.

[0047] FIG. 16. Computer program block diagram for printing banner footprints.

[0048] FIG. 17. Computer program input dialog window.

[0049] FIG. 18. Computer program calculation of stride length per second.

[0050] FIG. 19. Six-stride screen banner printout for 220 lb. person.

[0051] FIG. 20. Project tree showing help information by double clicking on node.

#### DETAILED DESCRIPTION OF THE INVENTION

[0052] 1. Referring to FIG. 12, a tetrahedron (A, path abc) is added to the diagram. The tip of the tetrahedron (e) falls on the base constant which is equal to Planck's constant divided by the speed of light. A second tetrahedron (B, path def) is inverted around horizontal line (D) which has a geometrical relationship to the base constant. The line is located at

$$\text{centerline} = \frac{2}{\sqrt{3}} \ln\left(\frac{h}{c}\right) = -110.7536373$$

Notice that the intersection of the two inverted tetrahedrons (g) occurs at the Planck wavelength which is the boundary between space and hyperspace. Line (D) is referred to as the merging of two worlds or the connecting of two worlds, a phrase obtained by means of remote viewing. That is, it is

the dividing line between space and hyperspace. This is the reason that the two boundaries intersect at this point.

[0053] Referring to FIG. 13, the proton wavelength (E) is added to the diagram. The proton wavelength has a value of the electron wavelength divided by 1836.1527

$$\ln(\lambda_p) = \ln\left(\frac{\lambda_e}{1836.1527}\right) = -34.26005901$$

A line (hd), from the base constant at the proton wavelength (h), to the corner of the inverted tetrahedron (d), intersects the merging of two worlds line at point (i). A circle, with a radius equal to the Planck mass (G), centered (i), is tangent to the inverted tetrahedrons. Thus the proton is defined by the base constant and the geometry of subspace. The reason that the proton is tangent to both tetrahedrons is because the electron and proton follow one single path between space and hyperspace. Thus there is only one single particle in nature. Because the particle enters our space at two different locations, we see the one particle as two distinct elementary particles. This relationship can be seen in Library of Congress tetrahedron diagram tet0565.

[0054] Referring to FIG. 14, the mass of the universe MU is equal to the linear mass Q of the universe times the radius R of the universe which is  $10^{26}$  meters

$$\ln(MU) = \ln(\Omega R) = 122.3347509$$

as shown on the diagram as line (A). The electron wavelength (B) reflects off the circumscribing sphere (H) and returns as the electron mass (C). The distance between reflection points is the hyperspace charge which is equal to the charge of space less the electron charge. So the electron goes from wavelength to electric charge to mass. The proton wavelength (D) reflects off the sphere and returns as the proton mass (E) which intersects the horizontal axis at point (c). A line (abc) from the mass of the universe at the vertical axis (a) to the proton at the horizontal axis (c) intersects the electron (b) which determines the electron's mass and wavelength since this point is on the  $45^\circ$  base line. What this means is that cosmology determines the values of the elementary particles.

[0055] Referring to FIG. 15, the mass of the water molecule (C) intersects the  $45^\circ$  base line at point (a). A circle (F), with a radius equal to the Planck mass is centered on point (c) at the Planck wavelength boundary (B) where the mass of the water molecule numerically equals the energy of the water molecule and where the speed of light is unity. The Planck mass is tangent to the base constant which is the vertical centerline (I) of the diagram. The large circle (H), centered (a) on the water molecule, is tangent to the mass of the universe (b) and tangent to the inverted tetrahedron (E). The difference between this circle (H) and the base constant (I) is the energy the hyperspace being has to acquire in order to be tuned to the mass and geometry of subspace. This difference, shown as circle (G), has a mass

$$m = e^{-4.792671} \text{ kg} = 8.29 \cdot 10^{-3} \text{ kg}$$

Thus the hand vortex radius ratio has to be the square root of the mass of the hyperspace energy being divided by this tangent mass, or:

$$r = \sqrt{\frac{.071 \text{ kg} \cdot 1 \text{ in}^2}{e^{-4.792671} \text{ kg}}} \approx 3 \text{ inches}$$

which is a vortex radius that is three times larger than that of a normal person, but one inch smaller than the third test subject who had a hand vortex radius of 4 inches. This is the reason that the third test subject was able to walk through walls and teleport to other locations because his energy was sufficiently large enough to cross over the inverted tetrahedron into a co-dimension of hyperspace. Notice also that dotted circle (J) with a radius equal to the mass of the water molecule, centered (c) on the boundary, is tangent to the tetrahedron (K). This makes the combined geometry tangent to the inverted tetrahedrons and the mass of the universe.

[0056] 2. Referring to FIG. 16, a computer program generates a banner printout with footprints spaced for walking according to the weight, shoe size and length of banner desired. Some banners could fit in a small room, or be placed on the floor of a long corridor. As shown in the block diagram the program inputs these three variables with error checking. Then the program calculates the stride length L per second from the equation

$$L = \frac{M}{W} T$$

[0057] 3. In the above equation, the value of the momentum M, as determined by the tetrahedron diagram, is preferably 50.9095736 kg m/s. The weight of the person is converted to mass W in kilograms. The stride period is preferably 1 second. Referring to FIG. 17, the data is entered in the dialog input window.

[0058] 4. Once the stride length has been calculated, the program displays the stride length and the required number of banner sheets in the message window, as seen in FIG. 18.

[0059] 5. The print banner menu is selected and the foot prints are printed on continuous banner paper. A six-stride scaled screen version of the banner is shown in FIG. 19. The banner paper is then placed on the floor, and a one-second beeping timer is activated from the toolbar or menu. The person then walks beside the printed foot prints, taking one stride per beep, which produces the correct walking momentum to generate the hyperspace vortex. The vortex, which forms in only six strides, brings additional hyperspace energy into the quantum potential wells of the hyperspace energy being.

[0060] 6. A help system consists of a project tree which explains the various steps in using the program. Double mouse clicking on a project tree node displays the help instructions in a dialog window as shown in FIG. 20.

[0061] 7. In summary, the purpose of the training system is to substantially increase the energy of a human being who will then have the capability of walking through walls, body levitation, instantaneous healing of infections, full-body teleportation to another location, remote viewing at vast distances in terms of light-years, and looking into hyper-

space co-dimensions. The third test subject and I have been able to experience all the above phenomena. He did it through augmenting his energy, and I have done it through the application of electromagnetic fields, by spinning on my vortex accelerator machine and using this invention.

I claim:

1. A training method comprising the steps of:
  - generating a banner having a plurality of footprints spaced at regular intervals wherein the banner is placed on the ground;
  - generating a periodic audible signal, whereby the audible signal repeats at a regular interval of time equal to the period; and
  - walking on the banner by tracing the footprints spaced at regular intervals, wherein one step is made with each audible signal.
2. The method of claim 1, wherein the step of generating the banner further comprises:
  - providing a person's actual mass in kilograms; and
  - determining the stride length based upon the following equation:
 
$$L=(M/W)*T$$
 where L is the stride length in meters, M is a constant of approximately 50.91, W is the mass of the person in kilograms, and T is the period of the audible signal in seconds, and

wherein the footprints on the banner are spaced at the stride length.

3. The method of claim 2, wherein the audible signal is a beep and the period of the audible signal is one second.

4. A training method for a person comprising the steps of:
  - generating an audible signal having a fixed period;

generating a banner having regularly spaced indicia for identifying preferred step locations, wherein the distance between adjacent indicia is determined by the following formula:

$$L=(M/W)*T$$

where the distance between adjacent indicia in meters is L, a constant of 50.9095736 is equal to M, the person's mass in kilograms is W, and the fixed period in seconds is T; and

walking on the marked path by stepping upon each of the regularly spaced indicia wherein one step is made with each period of the audible signal.

5. The training method of claim 4 wherein the fixed period is one second.

6. The training method of claim 5, wherein the regularly spaced indicia are footprints.

\* \* \* \* \*





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**John Q. St.CLAIR**

**Patent Applications**

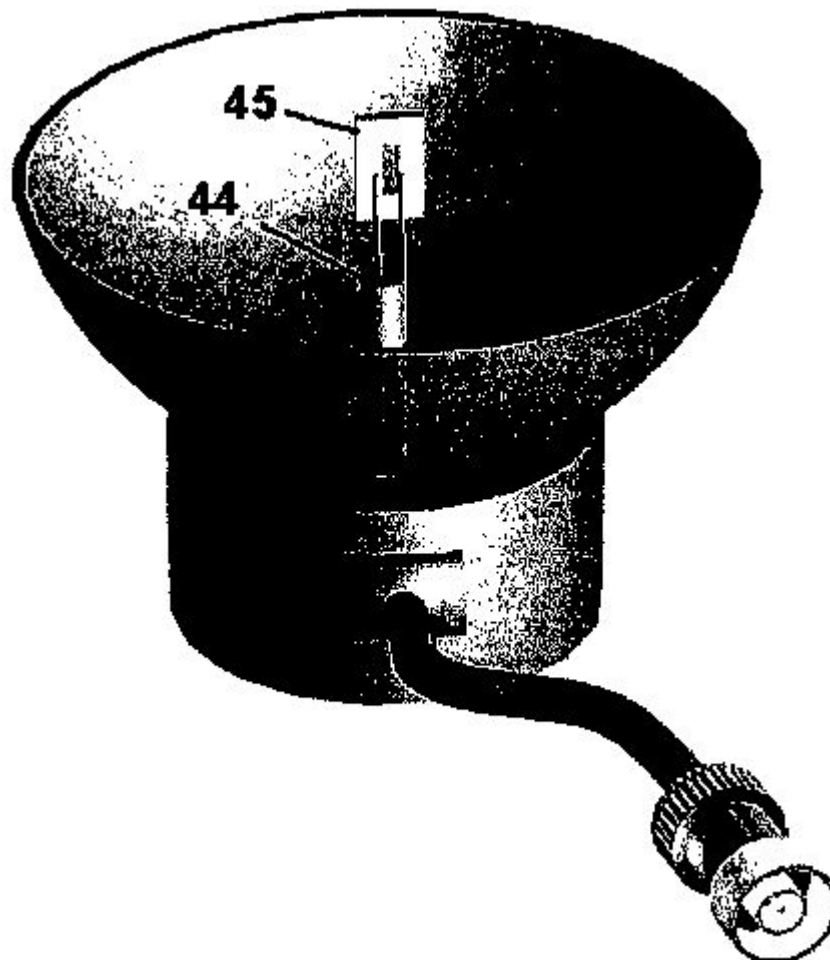
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**[US20070285325](#)**

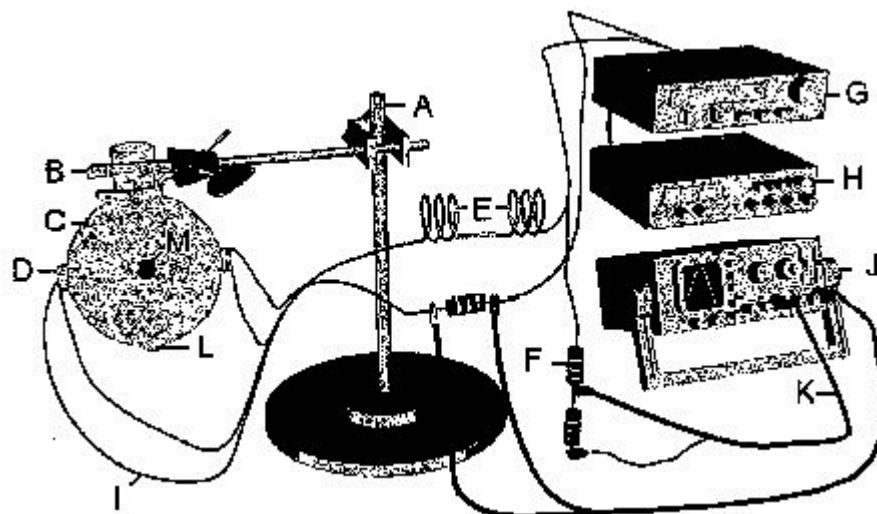
**Chi energy amplifier**

**Abstract:** A Chi energy amplifier that utilizes a co-gravitational K field to generate a flow of hyperspace energy into or out of a ceramic dome containing a slot antenna.

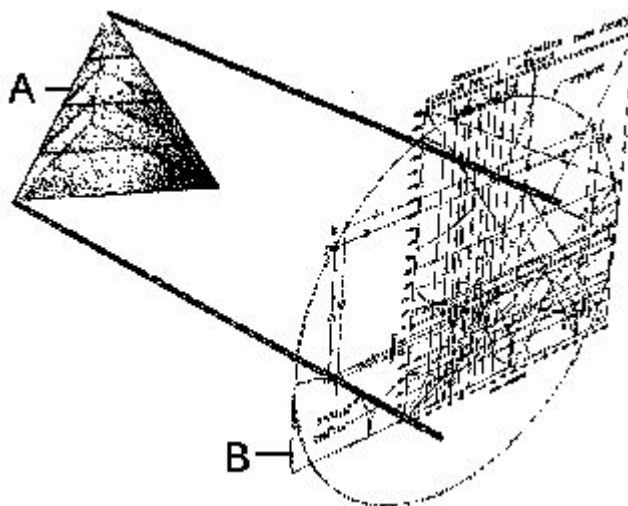


[US20040200925](#)**Cavitating oil hyperspace energy generator**

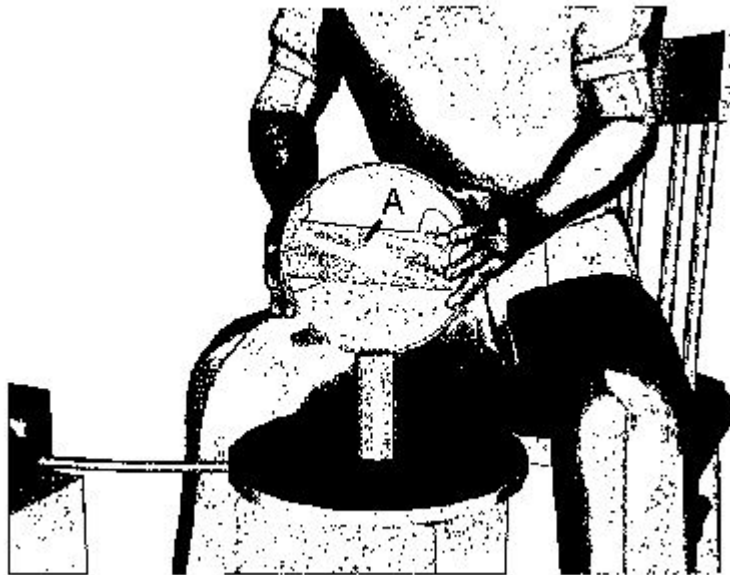
**Abstract:** A hyperspace energy generator that uses cavitating oil bubbles within a magnetic field in order to create wormholes between space and hyperspace for the purpose of permeating the hull of a spacecraft with low-density hyperspace energy.

[US20040164824](#)**Hyperspace energy generator**

**Abstract:** This invention is a braided gold wire coaxial cable of micron size which generates hyperspace energy by coupling to the tetrahedral geometry of subspace, dimension and the Planck mass.

[US20040102810](#)**Hyperspace torque generator**

**Abstract:** A hyperspace torque generator which comprises a flat bifilar magnetic bucking field electrical coil, crystal ball, lever arm and frequency generator for producing a linear flow of hyperspace energy at right angles to a rotating flow of astral chakra energy.

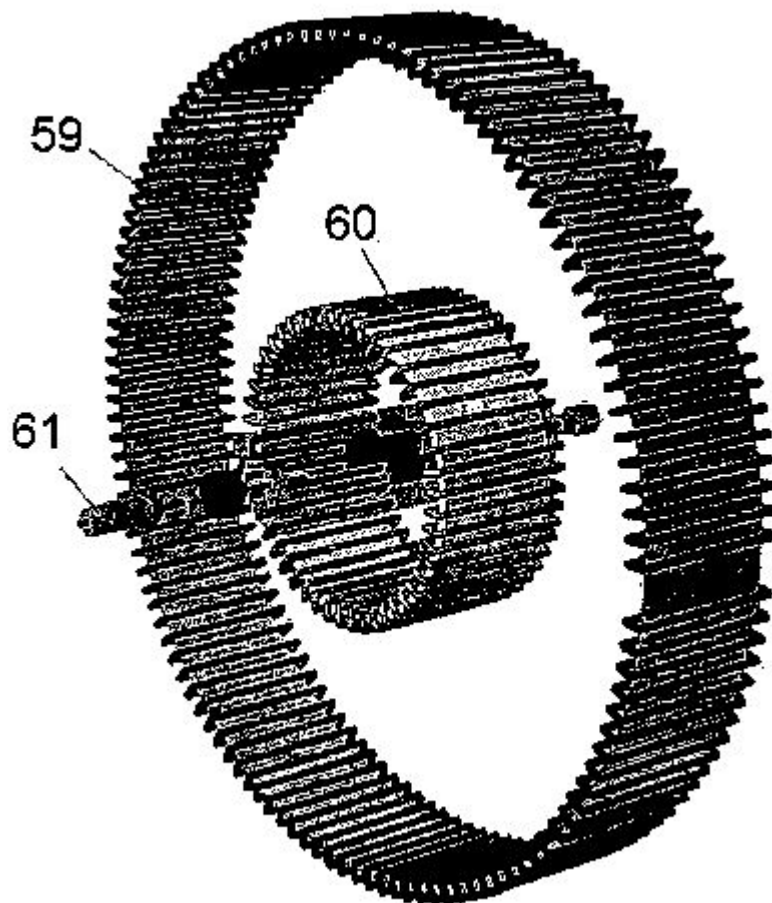


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**[US2006180473](#)**

**Water energy generator**

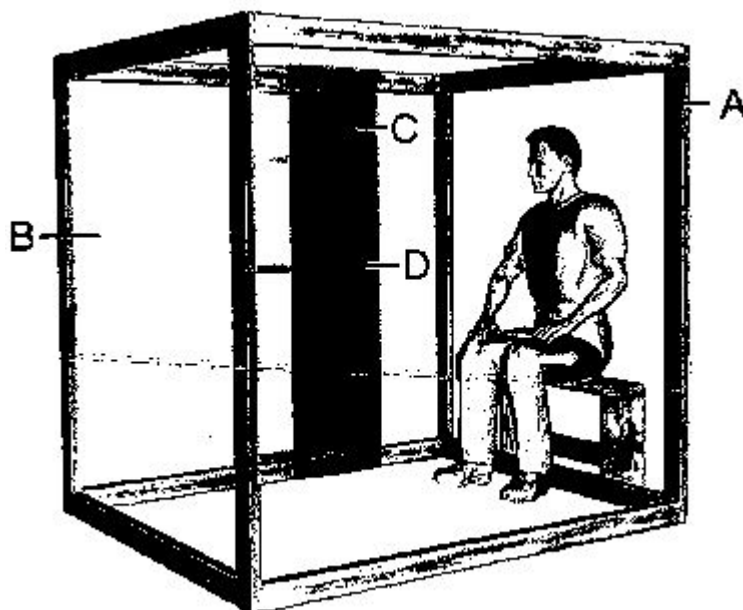
**Abstract:** A water energy generator that generates electricity using a magnetic vortex wormhole generator and a water injector/vacuum chamber to produce low density hyperspace energy that causes the hydrogen atoms of water molecules to decay into electron pairs.



[US2006072226](#)

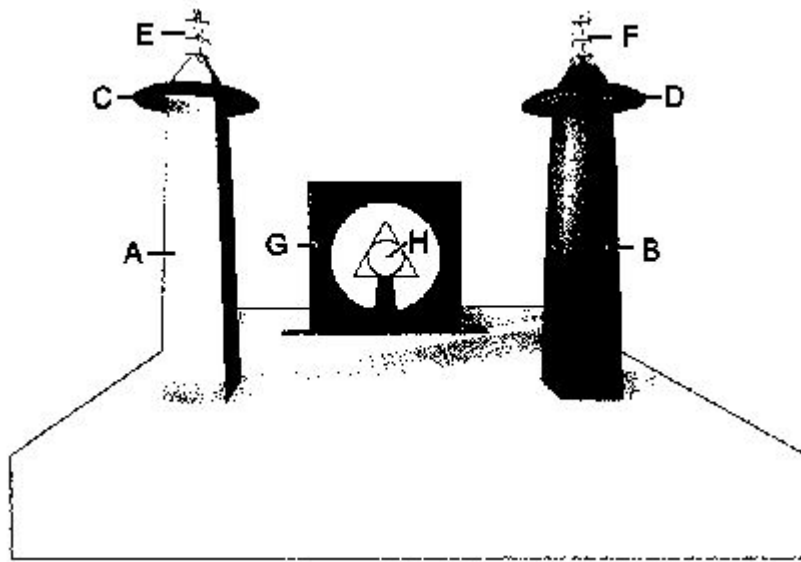
### Remote Viewing Amplifier

**Abstract :** An apparatus which enhances the ability of a person to perform remote viewing by connecting the human spiritual eye to the tetrahedral geometry of subspace.

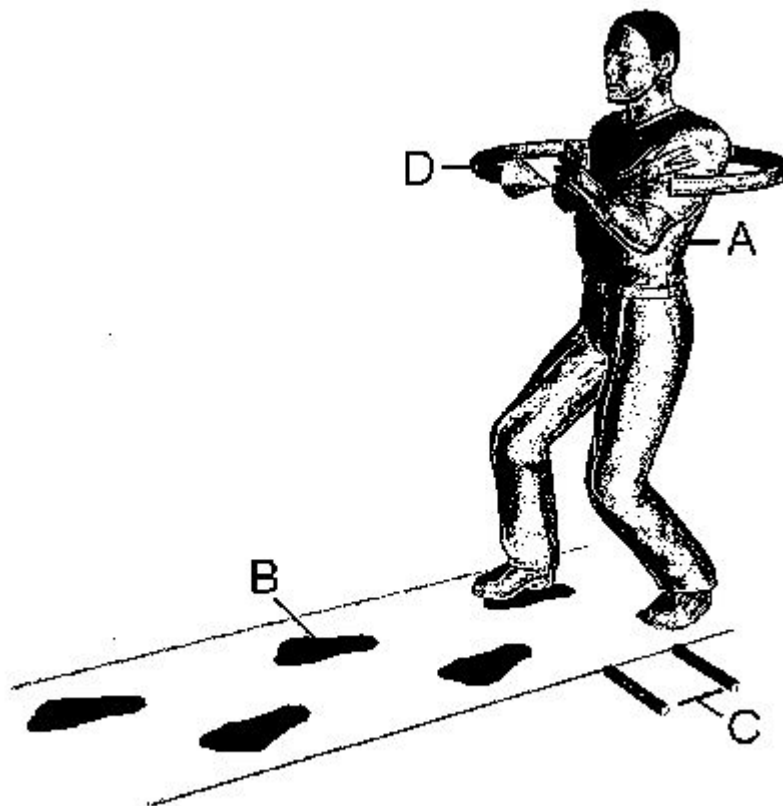


**US2006071122****Full Body Teleportation System**

**Abstract :** A pulsed gravitational wave wormhole generator system that teleports a human being through hyperspace from one location to another.

**US20060014125****Walking Through Walls Training System**

**Abstract :** A training system which enables a human being to acquire sufficient hyperspace energy in order to pull the body out of dimension so that the person can walk through solid objects such as wooden doors.



### [US20030197093](#)

#### **Magnetic vortex wormhole generator**

**Abstract:** This invention relates to a magnetic vortex generator which has the ability to generate negative mass and a negative spring constant which, according to Einstein's General Theory of Relativity, is required in order to create a stable wormhole between our space and hyperspace. Two separate, but electrically connected, toroidal coils of differing radii, carry magnetic flux in opposite directions about their common centerline. According to Maxwell's equation, this produces bucking electric fields along said centerline. Because the two solenoids have different radii, the parallel spring constant of both coils is negative. The negative mass together with the negative spring constant produce a real resonant frequency which can distort the spacetime curvature due to the creation of powerful spikes of negative mass. This phenomenon, similar to the common electrical thunderstorm, opens up a wormhole into hyperspace through which low-density hyperspace energy can enter into our dimension.

Figure 1

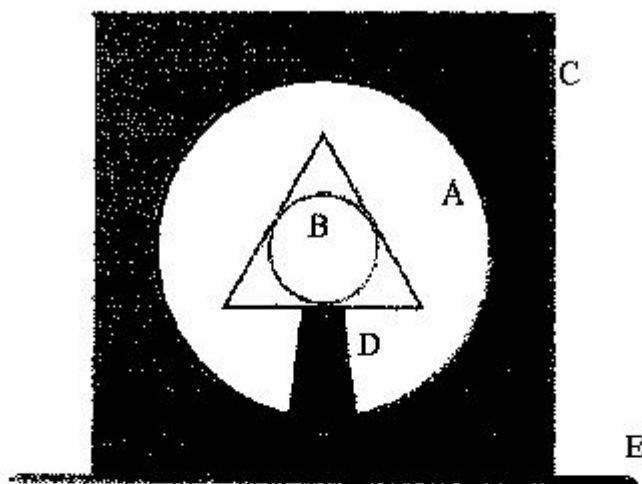
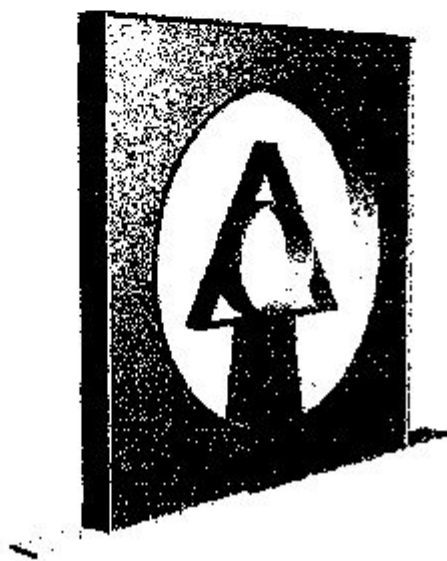


Figure 2



[US20030209635](#)

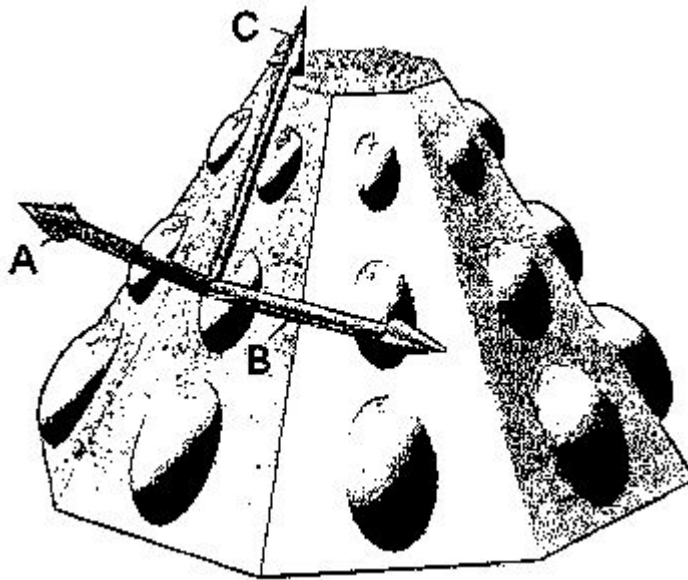
[US2006070371](#)

### Electric dipole moment propulsion system

**Abstract:** This invention relates to a spacecraft propulsion system utilizing a rotating octagon of trapezoidal electrically charged flat panels to create an electric dipole moment that generates lift on the hull. On the interior side of each panel are electrostatically charged rods which produce a planar electric field that emerges from holes in the panel to form an ellipsoidal potential energy bubble on the outside of the hull. The rotating hull dipole moment generates a magnetic moment which, together with the magnetic field gradient developed by the rotating electric field of the electrostatically charged panels, produces said lift force. The potential energy field is enhanced by



using a double cladding of hull material with different ranges of permittivities.



### [US2003230675](#)

#### **Rotor Inductance Propulsion System**

**Abstract:** A spacecraft having a circular, domed hull around which dual electrically-charged rotors one above the other are counter-rotating on the edge of the hull. Embedded in the hull are three solenoids which create a positive vector potential at the rotors. The surface charge density times the radius times the vector potential times the area of the rotors creates an angular momentum in the vertical direction. This angular momentum produces a positive spacetime curvature over the dome of the hull and a negative spiking spacetime compression over the rotors. By machining circumferential grooves of decreasing height along the radius of the rotor, a negative surface inductance is generated. This negative inductance gradient times the negative spacetime compression times the rotor current density squared times the rotor area squared is a positive lift force on the spacecraft.



Figure 8

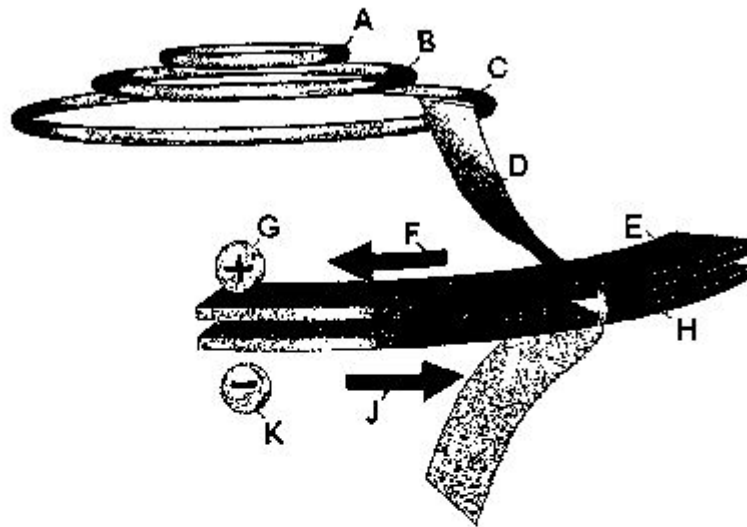
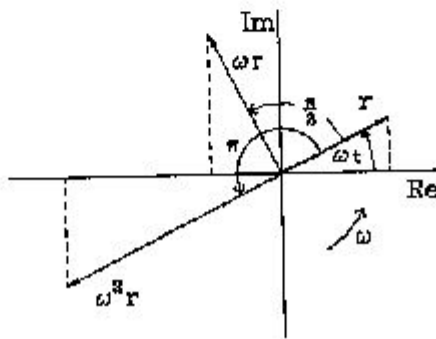


Figure 9



### [US2003209636](#)

#### **Bobbin Electromagnetic Field Propulsion Vehicle**

**Abstract:** A spacecraft which generates its own magnetic moment and magnetic field gradient in order to produce lift on the hull. The magnetic moment is generated by a large area solenoid located in the hull. A toroidal core wrapped with electrical bobbins at intervals along said core produces a traveling magnetic wave along its surface. This magnetic wave creates a spacetime curvature, similar to a tilted plate, which causes the formation of a magnetic field gradient. Power is not critical because the system uses a magnetic vortex wormhole generator to lower the speed of light in order to efficiently create highly relativistic fields due to Lorentz transformation.

Figure 1

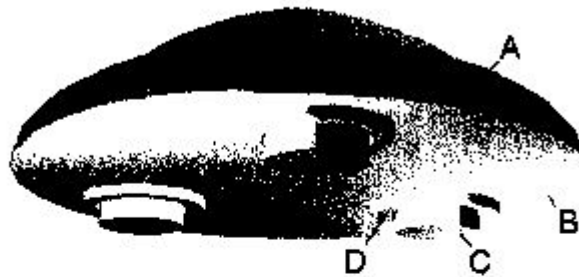
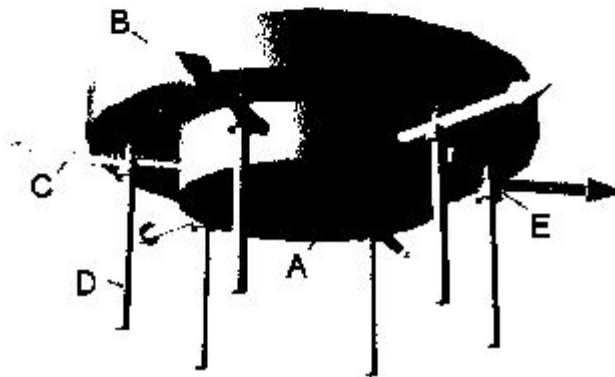


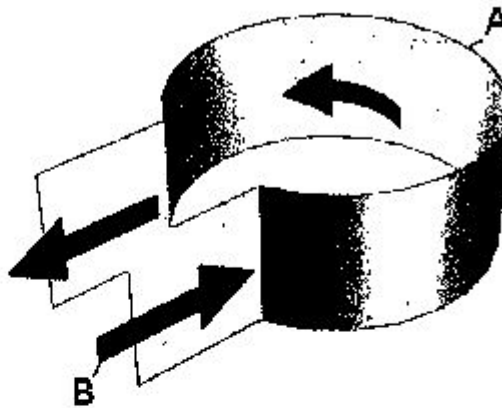
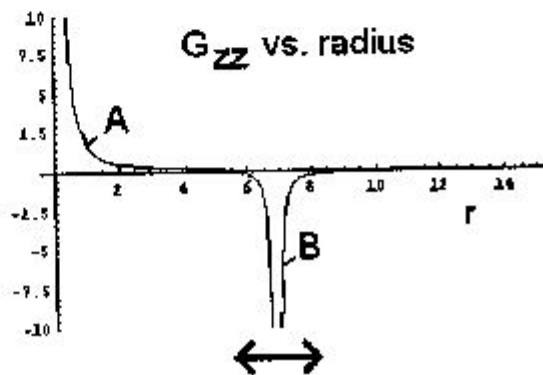
Figure 2



## [US2003209637](#)

### Rotating Electrostatic Propulsion System

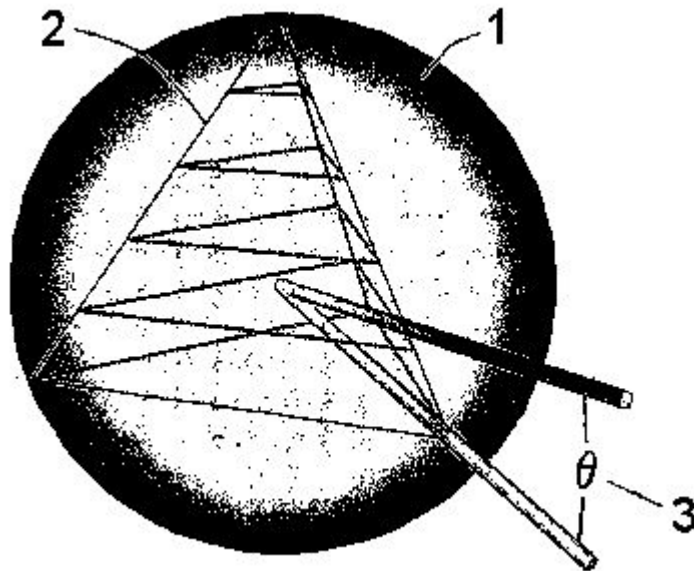
**Abstract:** A spacecraft propulsion system utilizing thrusters comprised of a motor-driven electrostatically charged cylinder rotating within an electrostatically charged annular ring for the purpose of creating a spacetime curvature stress-energy tension in the horizontal direction. The thrusters are augmented by magnetic vortex generators, either embedded in the cylinders or located above each thruster, for the purpose of increasing the permittivity of space by permeating each thruster with low density hyperspace energy generated by a wormhole created between our space and hyperspace. A combination of three thrusters mounted on the underside of the hull of the spacecraft provide thrust and yaw motion control.

**Figure 1****Figure 2**

[US2006168937](#)

### **Magnetic Monopole Spacecraft**

**Abstract:** A spacecraft propulsion system that utilizes a dual method of providing lift on the hull by means of magnetic monopoles and electromagnetic spacetime curvature pressure.

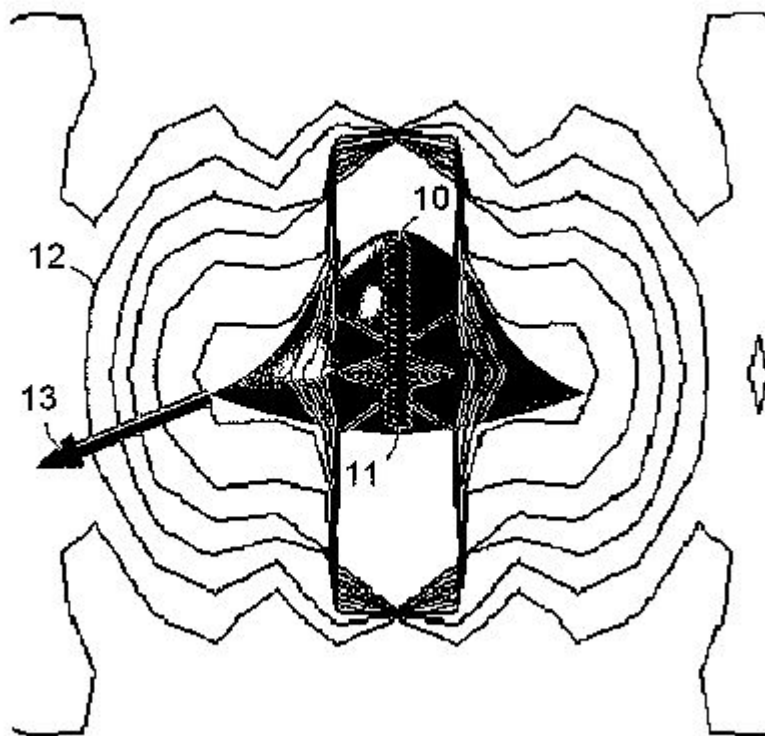


### [US2006144035](#)

#### Photon Spacecraft

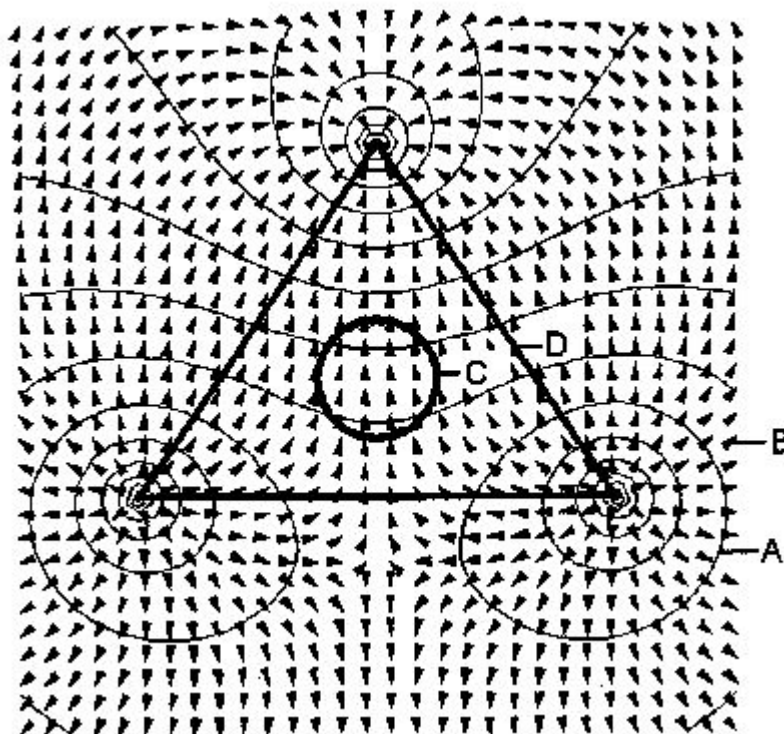
**Abstract:** A spacecraft propulsion system utilizing photon particles to create negative energy over the hull in order to generate a lift force on the hull

Figure 6



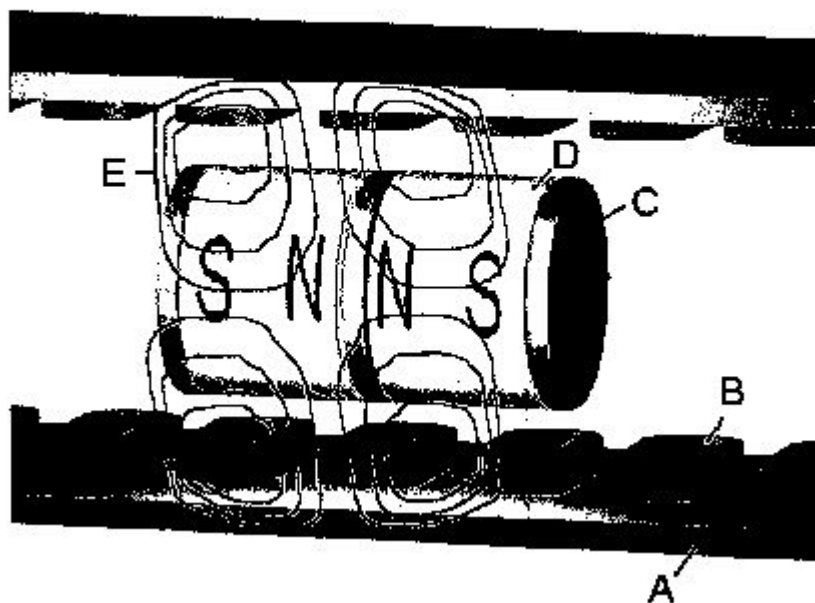
[US2006145019](#)**Triangular Spacecraft**

**Abstract:** A spacecraft having a triangular hull with vertical electrostatic line charges on each corner that produce a horizontal electric field parallel to the sides of the hull. This field, interacting with a plane wave emitted by antennas on the side of the hull, generates a force per volume combining both lift and propulsion.

[US2006112848](#)**Permanent Magnet Propulsion System**

**Abstract:** A propulsion system for a train that uses permanent magnets mounted on a rotating iron cylindrical plate carrying a radial current in order to create a spacetime curvature distortion which pulls the locomotive along the track.

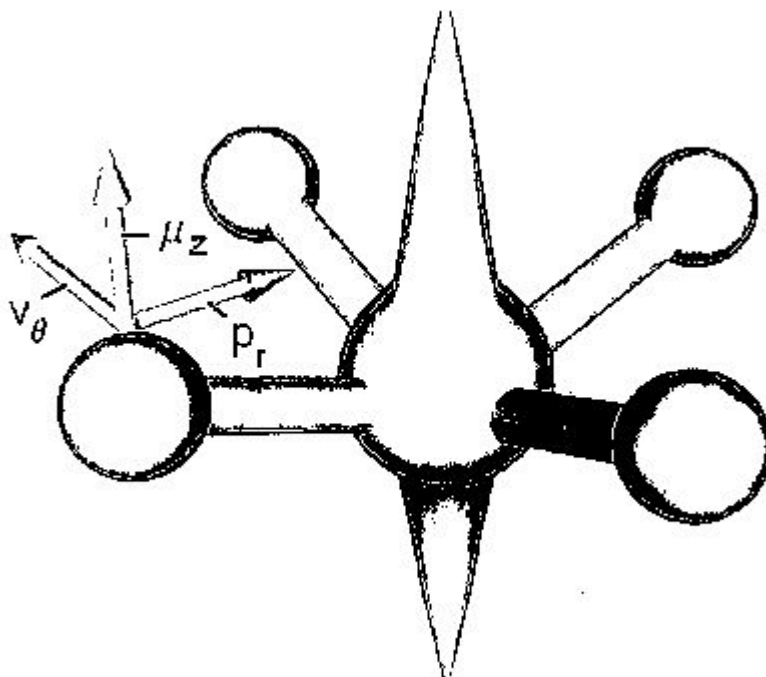
Figure 1



### [US2006038081](#)

#### Electric Dipole Spacecraft

**Abstract:** A rotating spacecraft that produces an electric dipole on four rotating spherical conducting domes perturbing a uniform spherical electric field to create a magnetic moment interacting with the gradient of a magnetic field that generates a lift force on the hull.





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US 20030209637A1

(19) **United States**  
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St. Clair (43) **Pub. Date: Nov. 13, 2003**

(54) **ROTATING ELECTROSTATIC PROPULSION SYSTEM**

(52) **U.S. Cl. .... 244/172**

(76) **Inventor: John Quincy St. Clair, San Juan, PR (US)**

(57) **ABSTRACT**

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(21) **Appl. No.: 10/142,582**

(22) **Filed: May 9, 2002**

**Publication Classification**

(51) **Int. Cl.<sup>7</sup> ..... B64G 1/40; B64G 1/42**

This invention relates to a spacecraft propulsion system utilizing thrusters comprised of a motor-driven electrostatically charged cylinder rotating within an electrostatically charged annular ring for the purpose of creating a spacetime curvature stress-energy tension in the horizontal direction. The thrusters are augmented by magnetic vortex generators, either embedded in the cylinders or located above each thruster, for the purpose of increasing the permittivity of space by permeating each thruster with low density hyperspace energy generated by a wormhole created between our space and hyperspace. A combination of three thrusters mounted on the underside of the hull of the spacecraft provide thrust and yaw motion control.

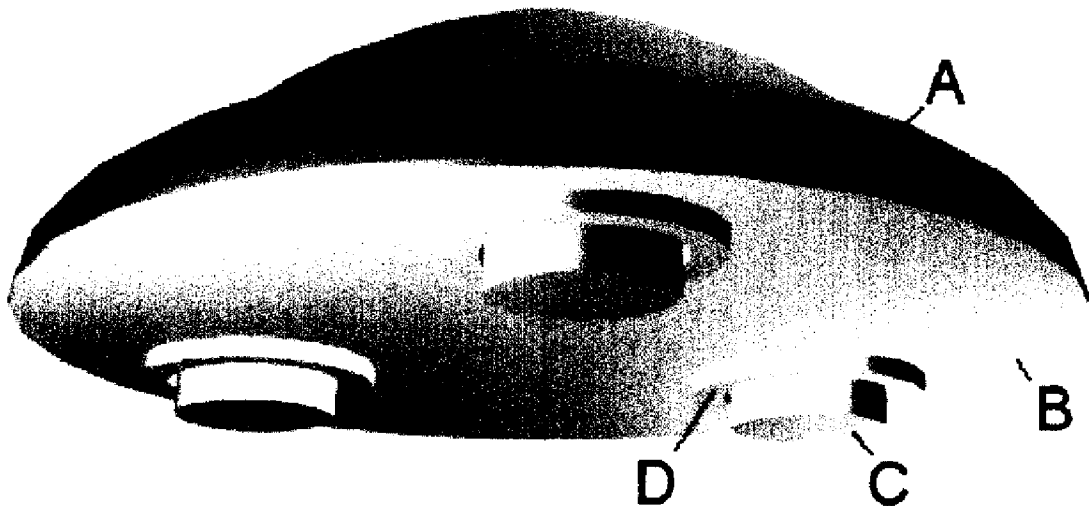




Figure 1

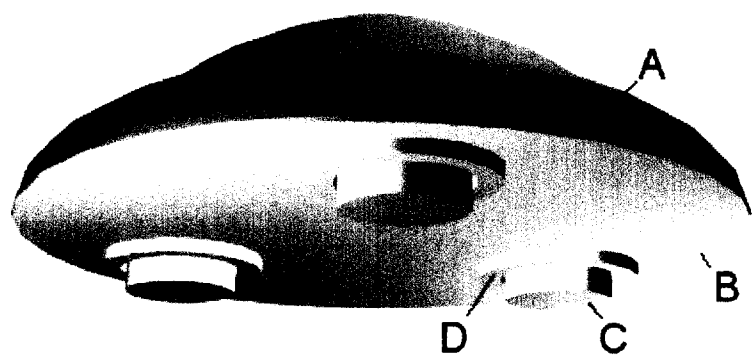


Figure 2

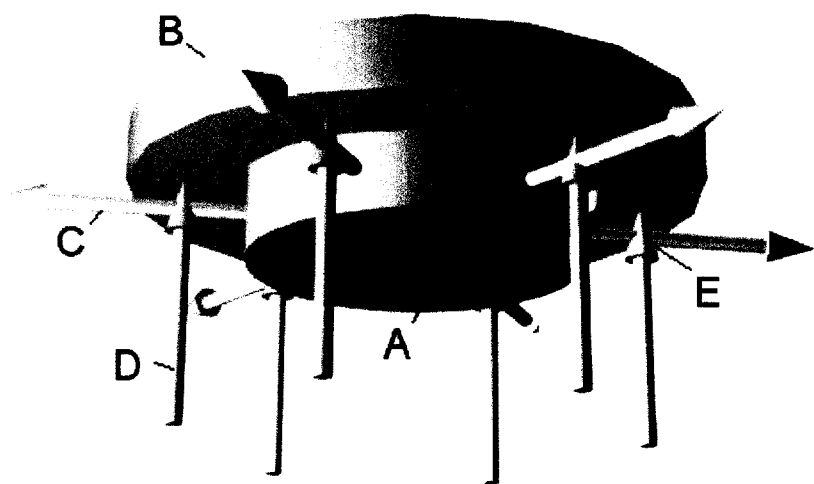


Figure 3

$$T^{zr} = -\frac{\epsilon_0}{\Omega c^2} \frac{E_z E_r}{4\pi} = \frac{\text{coul}^2}{m^2 n} \frac{n}{\text{coul}} \frac{n}{\text{coul}} \frac{m}{\text{kg}} \frac{s^2}{m^2} = -\frac{\text{kg m}}{s^2} \frac{s^2}{\text{kg m}^3} = \frac{-1}{m^2}$$

Figure 4

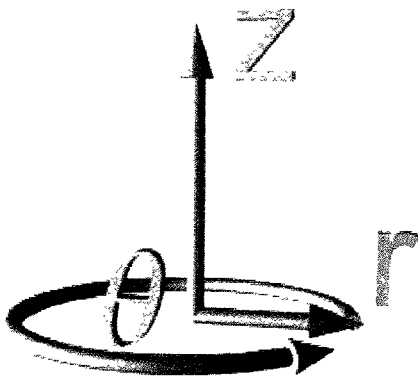


Figure 5

$$F^{\alpha}_{\beta} = \begin{array}{c|cccc} & t & r & \theta & z \\ \hline t & 0 & E_r & 0 & E_z \\ r & E_r & 0 & 0 & 0 \\ \theta & 0 & 0 & 0 & 0 \\ z & E_z & 0 & 0 & 0 \end{array}$$

Figure 6

$$T^{zr} = -\frac{E_r E_z}{4\pi}$$

Figure 7

$$\frac{d}{dt}S_r = \epsilon_0 \epsilon_{rtz} x^t T^{zr} n_r \text{Area} = \epsilon_0 t \frac{E_r E_z}{4\pi} n_r \text{Area}$$

Figure 8

$$\frac{\text{coul}^2}{\text{m}^2 \text{ n}} \text{sec} \frac{\text{n}}{\text{coul}} \frac{\text{n}}{\text{coul}} \text{m}^2 = \text{kg} \frac{\text{m}}{\text{sec}^2} \text{sec} = \text{kg} \frac{\text{m}}{\text{sec}}$$

Figure 9

$$\frac{d}{dt}S_{r,t} = \frac{\epsilon_0}{4\pi} e^{i\omega t} E_r E_z \text{ area} + \frac{i\epsilon_0}{4\pi} e^{i\omega t} E_r E_z t \omega \text{ area}$$

Figure 10

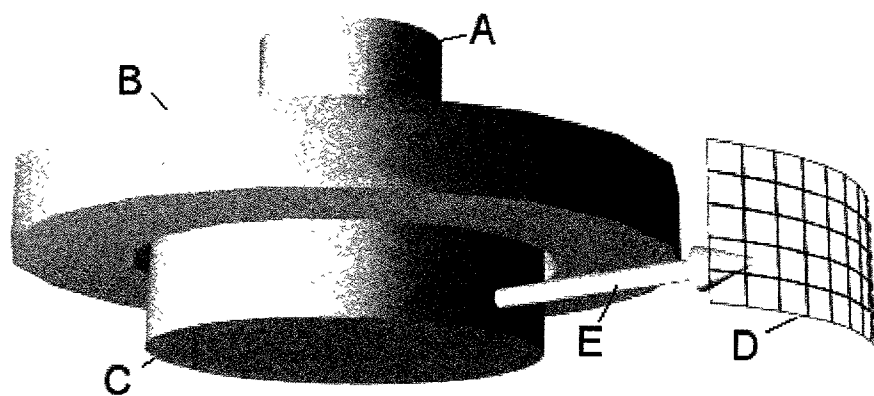


Figure 11

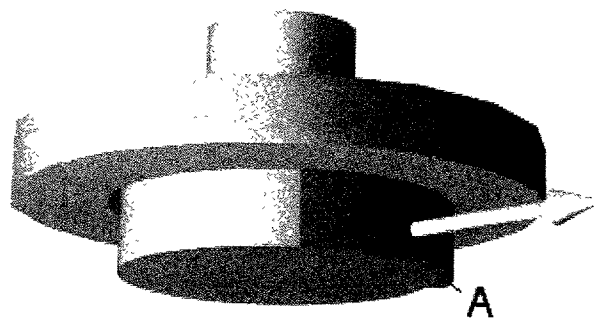
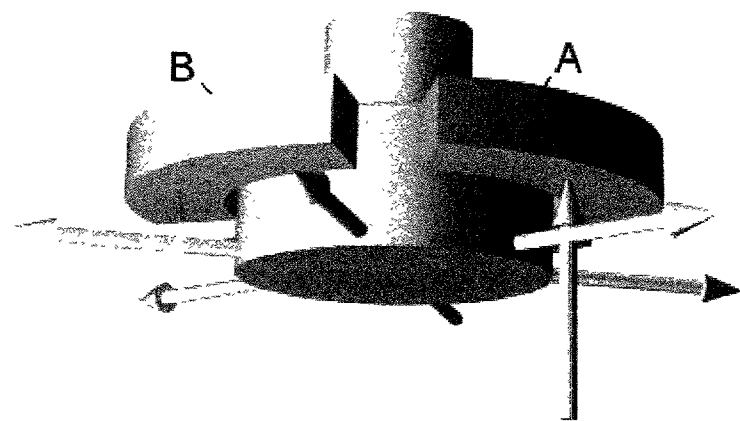


Figure 12



## ROTATING ELECTROSTATIC PROPULSION SYSTEM

### BRIEF SUMMARY OF THE INVENTION

[0001] The invention, which is the object of my present application, is a spacecraft propulsion system which develops a spacetime curvature tension utilizing a combination of a rotating radial electrostatic field and a fixed vertical electrostatic field. The two fields create a stress-energy  $T^{zz}$  gradient in the radially direction which is equal to force. The radial field is created on the side of a charged rotating cylinder on the underside of the hull. The vertical field is created by an annular charged ring concentric with the cylinder. Three rotating cylinders are located in a triangle on the bottom of the hull in order to produce a force in any direction in the horizontal plane.

### REFERENCE PAPERS

[0002] *Gravitation*, Wheeler, page 80.

### BACKGROUND OF THE INVENTION

[0003] When working with Maxwell's equations in tensor notation, it became apparent that a tensor can change identity depending on what permutation of variables is involved. For example, one single equation can involve both charge density and current density. And all of Maxwell's equations can be reduced to just two equations.

[0004] In the tensor equation for momentum, if the lever arm is length then the equation is equal to the flow rate of angular momentum. If the lever arm is time, then you get linear momentum. And if the field rotates with time, then the time rate of change of linear momentum is a force which is the basis for this invention.

[0005] Einstein said that mass curves space and space tells mass how to move. In this sense, generalized mass can be mass, electromagnetic fields, charge or angular momentum which create a spacetime curvature that produces a force on the spacecraft.

### SUMMARY OF THE INVENTION

[0006] The invention relates to a spacecraft utilizing a rotating electrostatically charged cylinder and a concentric annular charged ring to create a stress-energy spacetime curvature in the horizontal plane on the spacecraft's underside hull. A motor drives the rotating cylinder which extends below the hull. A charged surface produces an electric field in the direction normal to the surface. The vertical and rotating electric fields combine to create a rate of change of linear momentum which creates a horizontal propulsive force on the hull.

### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0007] Not Applicable.

### A BRIEF DESCRIPTION OF THE DRAWINGS

[0008] **FIG. 1.** Perspective view of spacecraft hull (A) with the three electrostatically charged rotating cylinders (C) surrounded by their annular charge rings (D) extending down on the underside of the hull (B).

[0009] **FIG. 2.** Perspective view of individual thruster showing rotating cylinder and ring.

[0010] **FIG. 3.** Stress-energy tension created by two electric fields and having units of curvature.

[0011] **FIG. 4.** Cylindrical spacetime coordinates  $\{t, r, \theta, Z\}$ .

[0012] **FIG. 5.** Faraday electromagnetic F tensor containing electric fields in the radial and vertical directions.

[0013] **FIG. 6.** Stress-energy tensor T showing it is equal to the product of the two electric fields divided by  $4\pi$ .

[0014] **FIG. 7.** The tensor equation for flow rate of angular momentum S.

[0015] **FIG. 8.** The units are linear momentum due to the time lever arm.

[0016] **FIG. 9.** The rate of change of linear momentum is the horizontal force produced by the two electric fields.

[0017] **FIG. 10.** The angular momentum flows through an area whose normal vector is in the radial direction.

[0018] **FIG. 11.** Cylinder with only one electrostatically charged segment.

[0019] **FIG. 12.** Annular ring with three individual segments which can be charged separately to create a force in a particular direction.

### DETAILED DESCRIPTION OF THE INVENTION

[0020] 1. Referring to **FIG. 1**, the spacecraft comprises an upper hull (A) with three rotating electrostatically charged cylinders (C) with their concentric annular electrostatically charged rings (D) located on the spacecraft's bottom hull (B).

[0021] 2. In a closer view of one of the cylinders seen in **FIG. 2**, motor-driven rotating cylinder (A) has an electrostatically charged surface which produces an electric field (C) normal to said surface. The fixed, electrostatically charged annular ring (B), which is concentric with the cylinder, produces a vertical electric field (D) normal to its surface. This crossed field (E) creates a negative spacetime curvature tension which is the product of the two fields divided by  $4\pi$  as seen in the equation, **FIG. 3**.

[0022] 3. Notice that the equation involves the permittivity of space  $\epsilon_0$  divided by the linear mass of the universe  $\Omega$  and the speed of light. This produces units of inverse meter squared which is the spacetime curvature. In Einstein's General Theory of Relativity, the spacetime curvature tensor is equal to the stress-energy tensor or  $G=8\pi T$  where G is the curvature, and T is the product of the electromagnetic fields. The problem with this equation, which has been resolved with this invention, is that the linear mass  $\Omega$  times the speed of light c is an enormous number. Even with the square of enormous electric fields, the curvature would be too small even to notice, and little force would be generated.

[0023] 4. In another patent application of mine entitled Magnetic Vortex Generator, it was shown that a rotating

cylinder containing embedded and stacked bar magnets produces a negative mass and negative spacetime spring constant. It can be shown that this combination produces a small wormhole or interdimensional connection between our space and hyperspace along the centerline of the rotating cylinder. Co-dimensions of hyperspace have different physics constants. A low pressure region of hyperspace has a very low mass density and a very low speed of light. The wormhole allows this low density hyperspace energy to enter into our space and permeate the cylinder and annular ring. The permittivity is proportional to the inverse of the speed of light squared. The hyperspace speed of light, obtained from my tetrahedron physics diagram, is 8971 meters per second. The speed of light in our dimension is 299792458 meters per second. As shown by the enclosed reference calculation, the hyperspace permittivity is about a trillion times larger. Because the force is equal to this new permittivity times the electric fields squared times the area around cylinder, the force is greatly amplified by this increase in the permittivity of space.

[0024] 5. It is pertinent to this invention how the stress-energy is created due to the two electric fields in the vertical and radial direction. In gravitational physics, there is a Faraday  $F$  tensor which contains all the components of the electromagnetic fields. It is a 4 by 4 matrix whose rows and columns correspond to the coordinates of spacetime which in cylindrical coordinates are  $\{t, r, \theta, z\}$  where  $t$  is time,  $r$  the radius,  $\theta$  the horizontal angle and  $z$  the vertical height. These coordinates are shown in FIG. 4.

[0025] 6. The radial electric  $E_r$  field and the vertical electric  $E_z$  field can be inserted into the Faraday tensor seen in FIG. 5. The sign of the vertical field is positive because it points in the positive  $z$ -direction due to the fact that the annular ring has a negative charge. The cylinder has a positive charge. This produces the negative stress-energy tensor  $T^{zz}$  as drawn in FIG. 6.

[0026] 7. In order to calculate the force on the cylinder, it is necessary to calculate the flow rate of angular momentum. Momentum is mass times velocity or mass meter per second. If the mass is moving in a circle, then there is a lever arm times the momentum which makes it mass meter squared per second. If this is differentiated with respect to time, then a flow rate of angular momentum is produced with units of mass meter squared per second squared. As mentioned previously, tensors have this dual nature where depending on the permutation of the variables, it means one thing or another. In this case, the lever arm will be time, rather than length which converts the flow rate of angular momentum into just linear momentum. If you change linear momentum with respect to time, then you get a force.

[0027] 8. The flow rate of angular momentum  $S$  is shown in FIG. 7. The force has to be against the area whose normal vector is in the radial direction which is also the direction of the momentum. So  $S$  has an  $r$  subscript indicating that it flows in the radial direction. The permutation tensor  $\epsilon$  has three subscripts which keeps track of the tensor notation. The first subscript is

the same as the momentum subscript. Permutations of the coordinate variables which are in order have a plus one sign. Permutations which are in reverse order have a minus one sign. Permutations in which the variable are repeated are zero. For example,  $\epsilon_{tr\theta z} = -\epsilon_{r\theta z t}$  because the  $r$  and  $t$  are in reverse order in cylindrical coordinates. Because the permutation tensor starts with  $r$ , then we can have permutations such as  $\{r, t, z\}$  which is a reverse order negative permutation. This negative sign cancels the negative sign of the stress tensor. The reason this permutation is chosen is because the first subscript on the stress-energy tensor is now  $z$ . Because the normal to the area is in the radial direction, then the stress-tensor matches the electric fields that we have available, which are also in the  $zr$ -direction.

[0028] 9. In this case, the second subscript of the permutation tensor is time, rather than length. So the units become, as shown in FIG. 8, those of linear momentum. To me, this was very surprising. Then I realized that the radial electric field rotates with time which means the differential of the linear momentum produces a force on the hull. In exponential notation, the radial electric field rotates with  $\text{Exp}[i\omega t]$ . This is multiplied by the time lever arm, so the term that has to be differentiated is  $t e^{i\omega t}$ . The time lever arm saves the differentiation by making one term real so that the force is real. This is shown in FIG. 9. The units of the first term are real newtons. In the second term, the time  $t$  multiplied by the frequency cancels out in terms of units, so the units are still force, but imaginary

[0029] 10. There is an area involved in the force equation which is depicted in FIG. 10. The charged rotating cylinder (C) located inside the charged annular ring (B) is driven by motor (A). The radial electric field (E) is normal to the area (D) whose normal vector is also in the radial direction. The angular momentum flows through this area which surrounds the cylinder. In doing so, it curves spacetime which produces the force.

[0030] 11. If the radial electric field is continuous around the cylinder, then the net force is zero. Referring to FIG. 11, one section (A) of the rotating cylinder is charged, which means that there is a force once per cycle in a selected direction depending on when the annular ring is charged. The other option, referring to FIG. 12, is that the annular ring is divided up into two or three sections with the feature that the charge can be turned on (A) or off (B) on a particular segment. As the rotating electric field goes around, one of the annular ring sections will have an electric field in order create a force on that side.

[0031] 12. Since there are three force cylinders, this allows for yaw motion control so that the hull of the spacecraft can pivot to change direction. After the directional change, the two back cylinders can be synchronized to produce thrust in the forward direction.

[0032] 13. There could also be a polarity change for the vertical electric field such that a positive stress-energy is produced which would reverse the direction of the thrust.

What I claim as my invention is:

1. A spacecraft propulsion system utilizing three electrostatically charged motor-driven cylinders each one of which rotates within a charged annular ring to produce a spacetime stress curvature tension in the horizontal plane on the underside of the hull.

2. Said rotating cylinder comprised of bar magnets embedded in the cylinder and stacked in groups at intervals around the periphery of the cylinder with the purpose of increasing the permittivity of space by permeating the cylinder and ring with low linear mass, low speed of light hyperspace energy by means of a wormhole between our space and hyperspace. The larger permittivity is to increase the force. Said technique is contained in my patent applications Magnetic Vortex Wormhole Generator and Magnetic Vortex Generator.

3. Said rotating cylinder and annular ring having a suitable metal surface for forming and maintaining the electrostatic charge.

4. Said rotating cylinder having one or more segments which can be electrostatically charged individually or together to produce a force in a particular direction.

5. Said annular ring having one or more segments which can be electrostatically charged individually or together to produce a force in a particular direction.

6. A combination of three such thrusters providing a force in any particular direction or for yaw motion control.

7. Electric polarity switching of the fields in order to reverse the spacetime curvature and therefore change the direction of thrust.

8. The use of a magnetic vortex generator located above each thruster in order to permeate the cylinders and rings with low density hyperspace energy which would substitute for the embedded magnets in each cylinder.

\* \* \* \* \*



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**St. Clair**

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(43) **Pub. Date: Feb. 23, 2006**

(54) **ELECTRIC DIPOLE SPACECRAFT**

**Publication Classification**

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**(US)**

(51) **Int. Cl.**  
**B64G 1/40** (2006.01)

(52) **U.S. Cl.** ..... **244/171.5**

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(57) **ABSTRACT**

This invention is a rotating spacecraft that produces an electric dipole on four rotating spherical conducting domes perturbing a uniform spherical electric field to create a magnetic moment interacting with the gradient of a magnetic field that generates a lift force on the hull.

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(22) **Filed: Aug. 4, 2004**

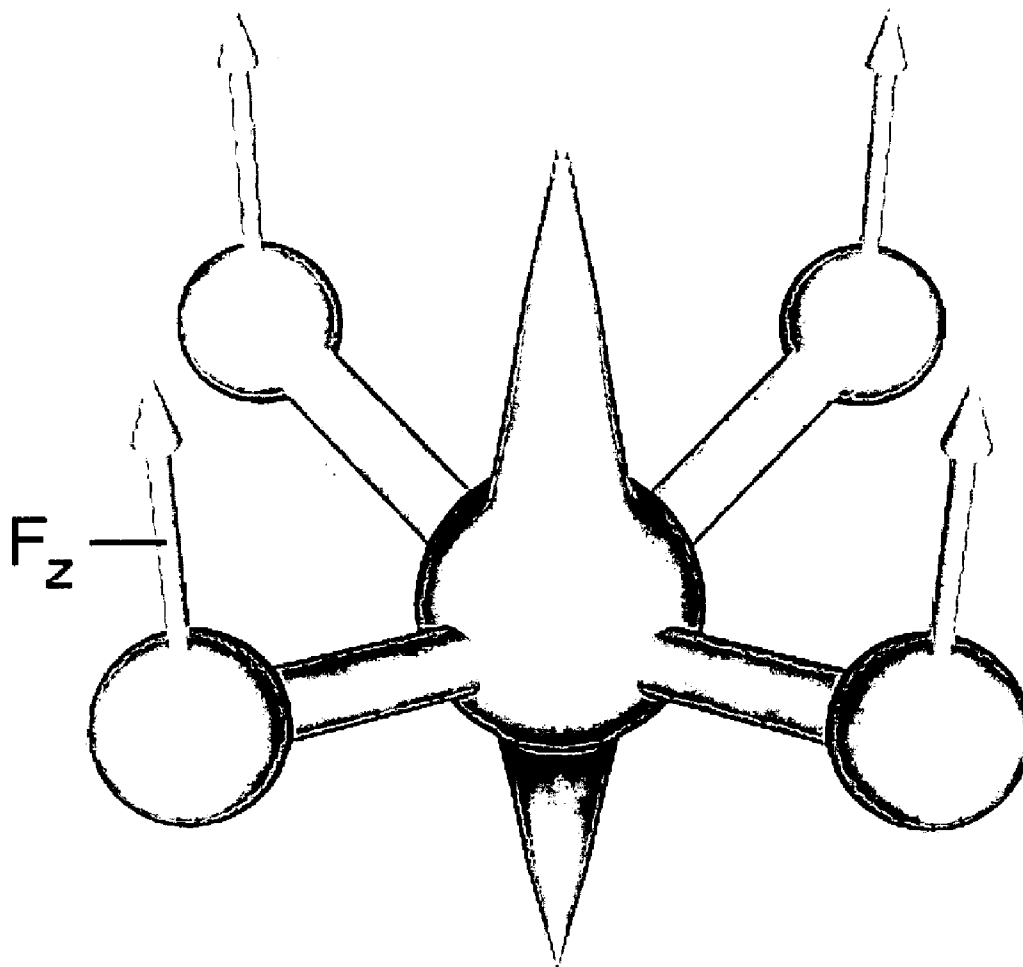




Figure 1

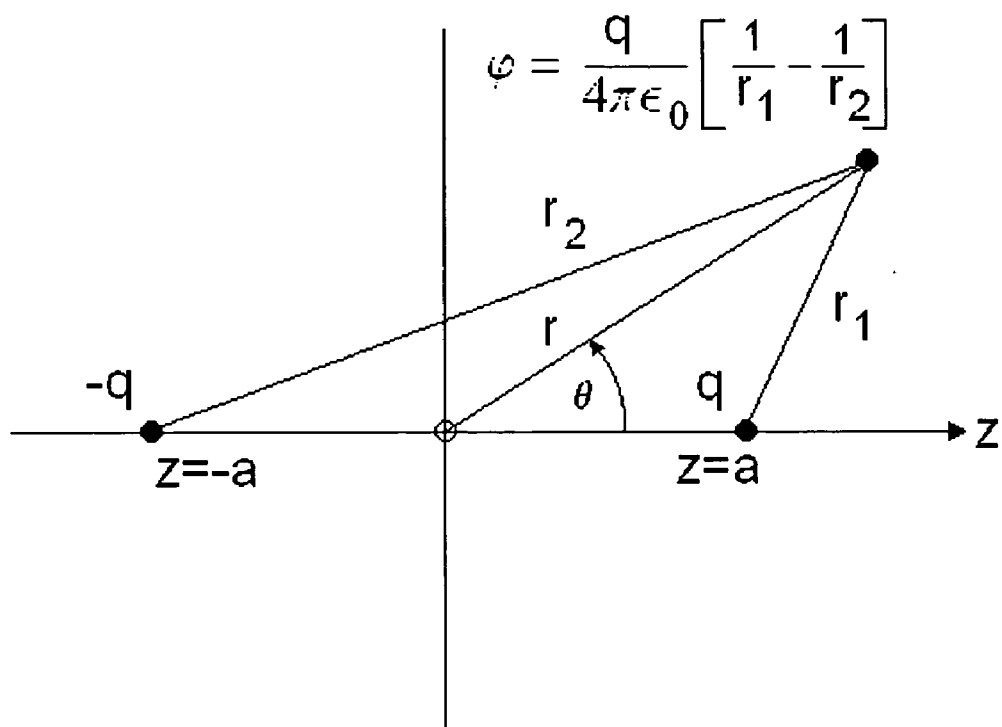
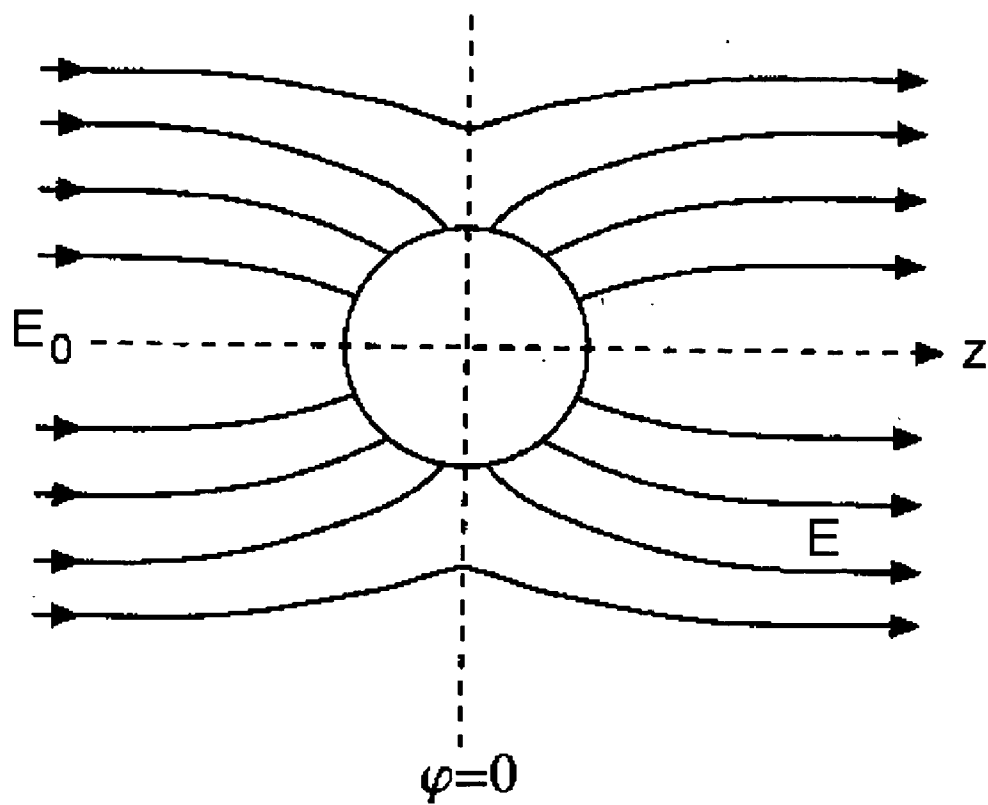
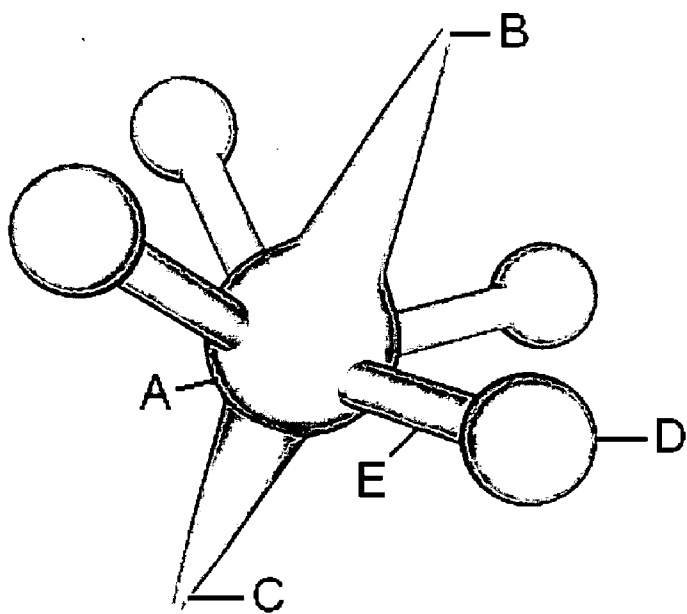


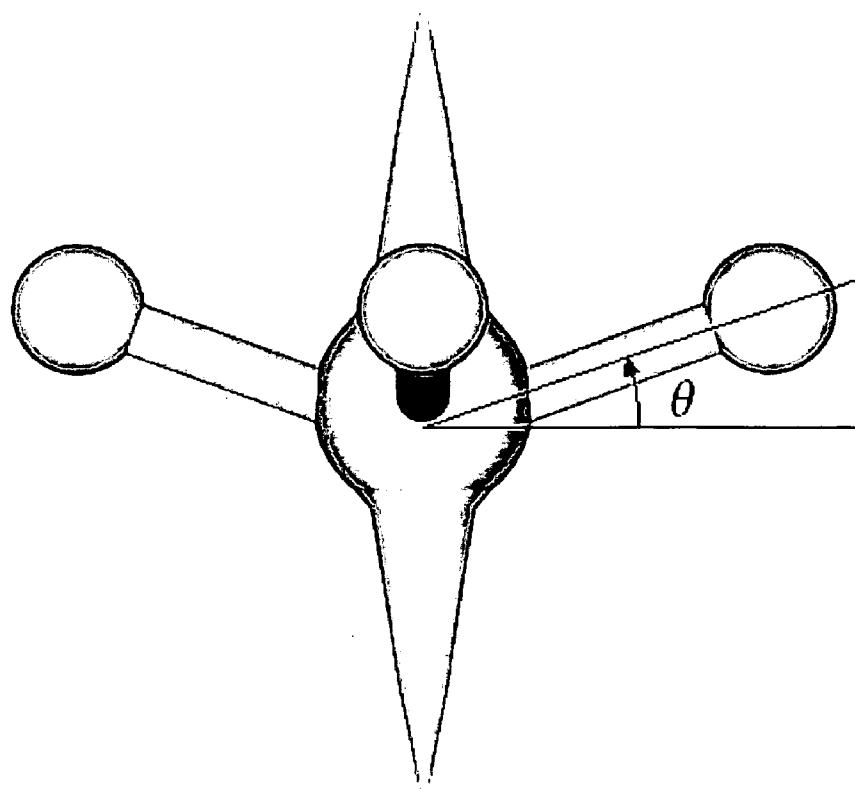
Figure 2



**Figure 3**



**Figure 4**



**Figure 5**

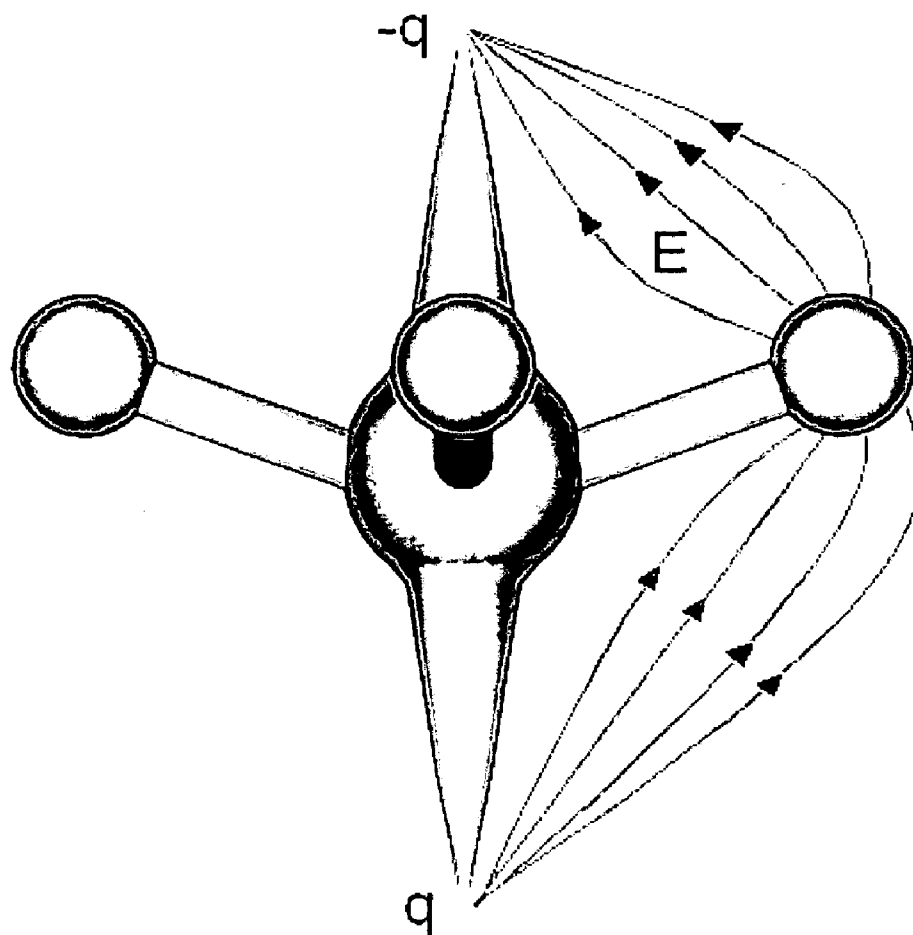


Figure 6

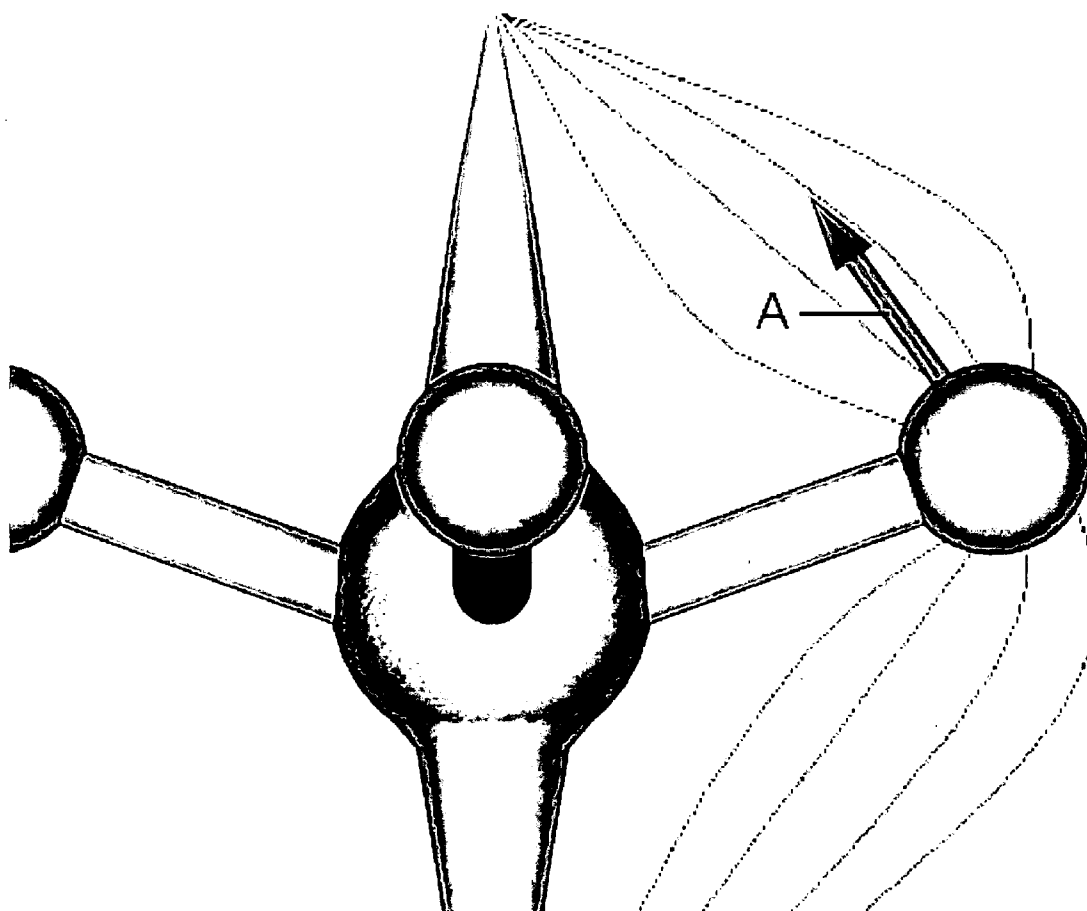


Figure 7

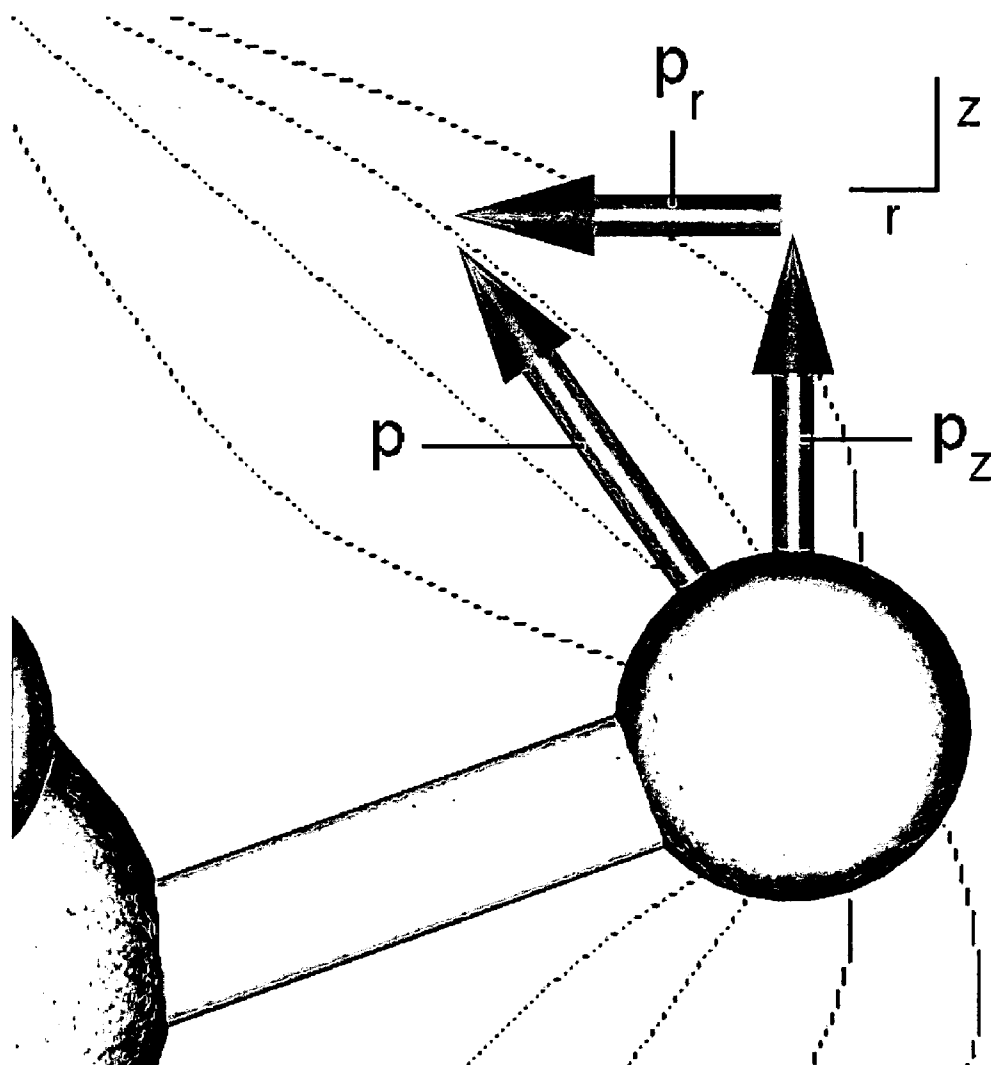


Figure 8

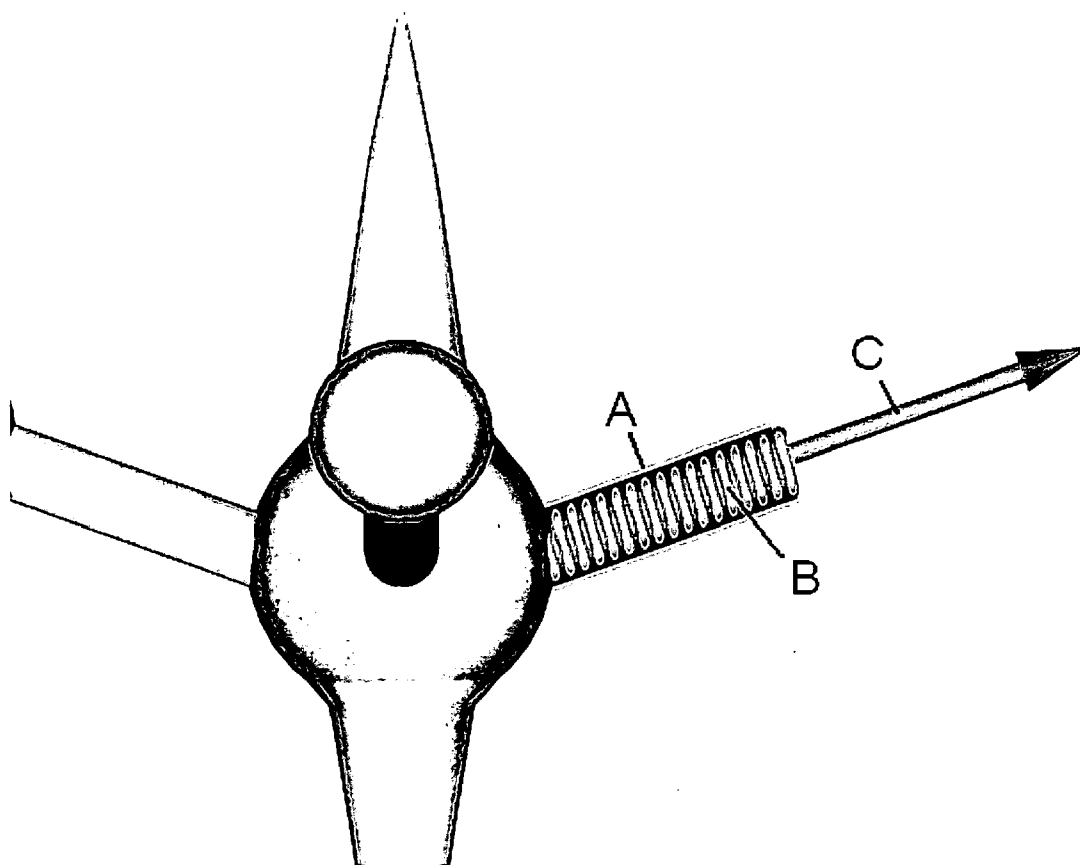




Figure 9

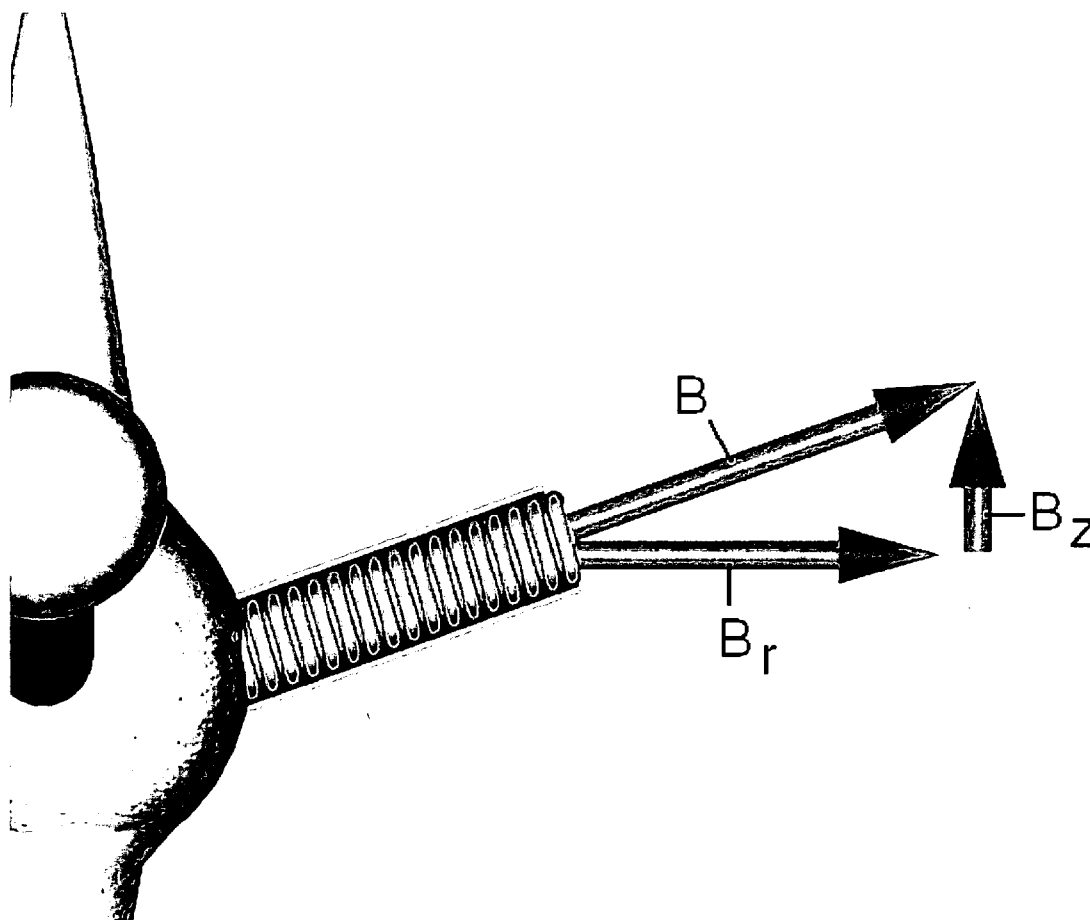


Figure 10

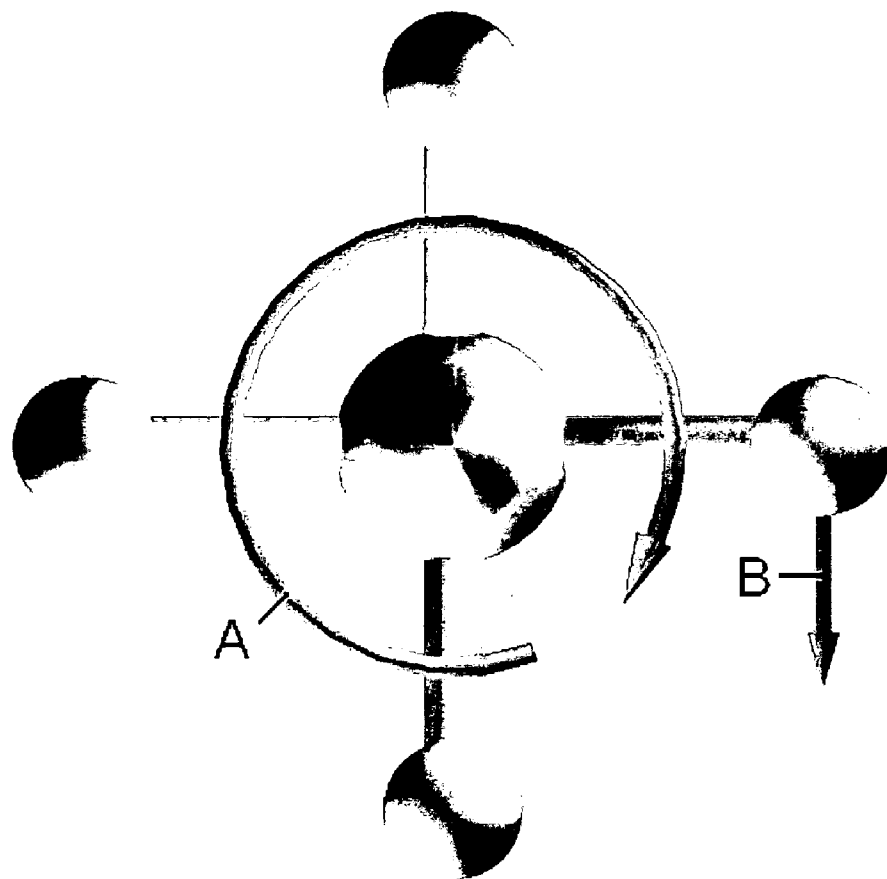


Figure 11

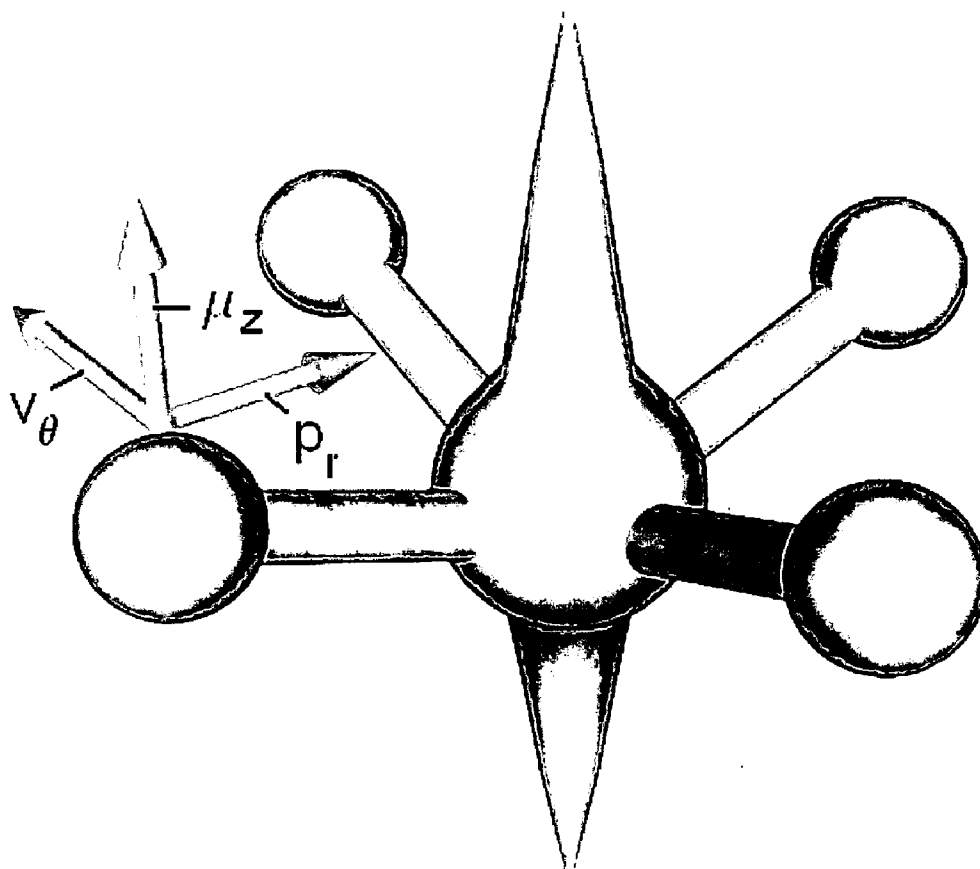


Figure 12

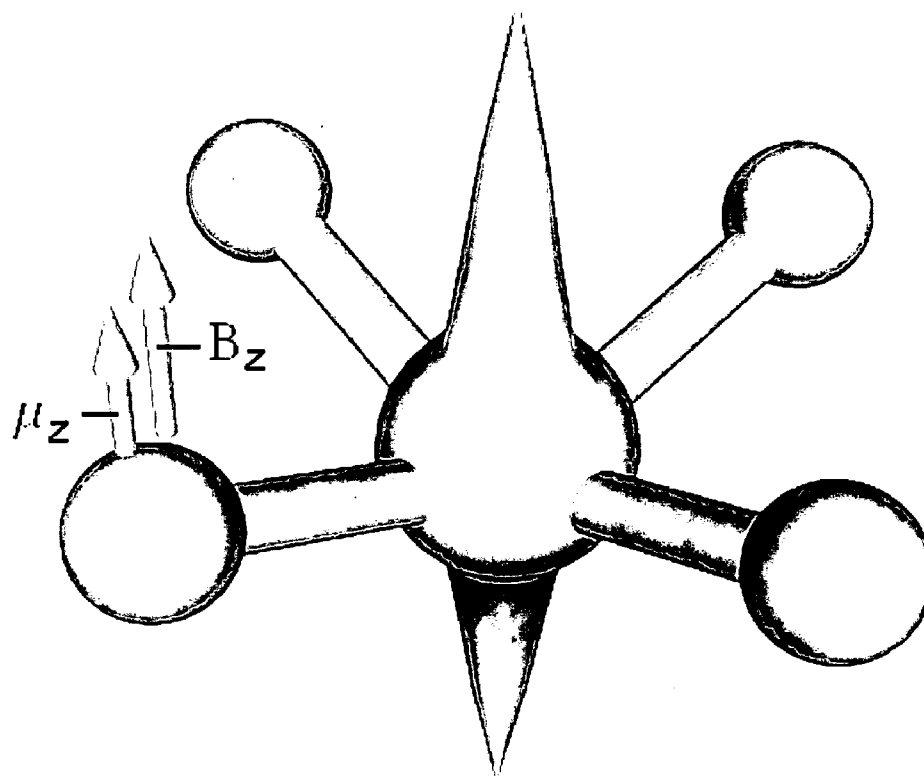


Figure 13

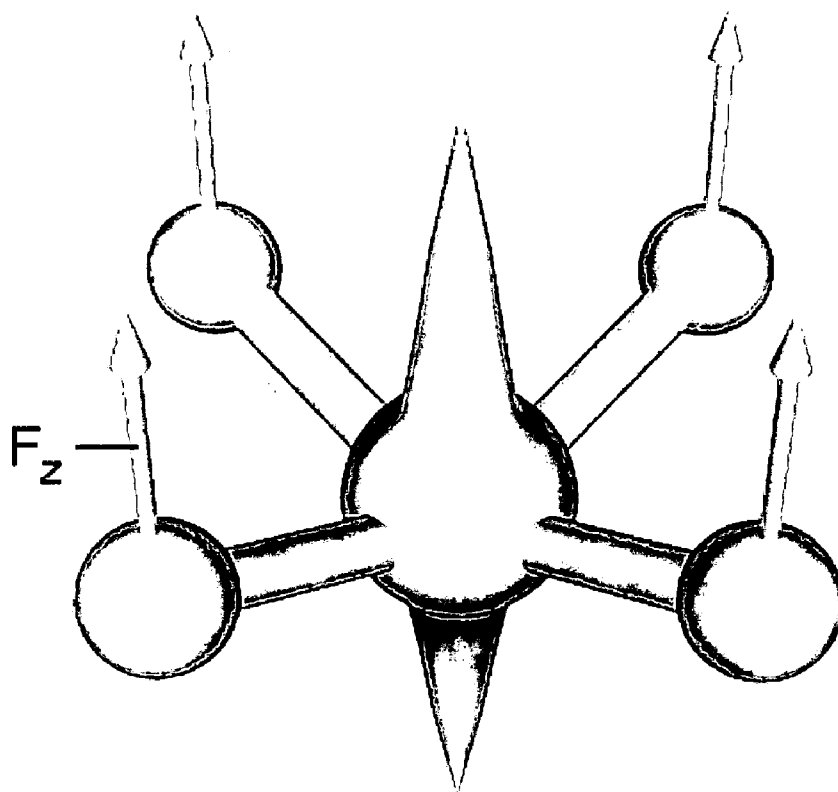
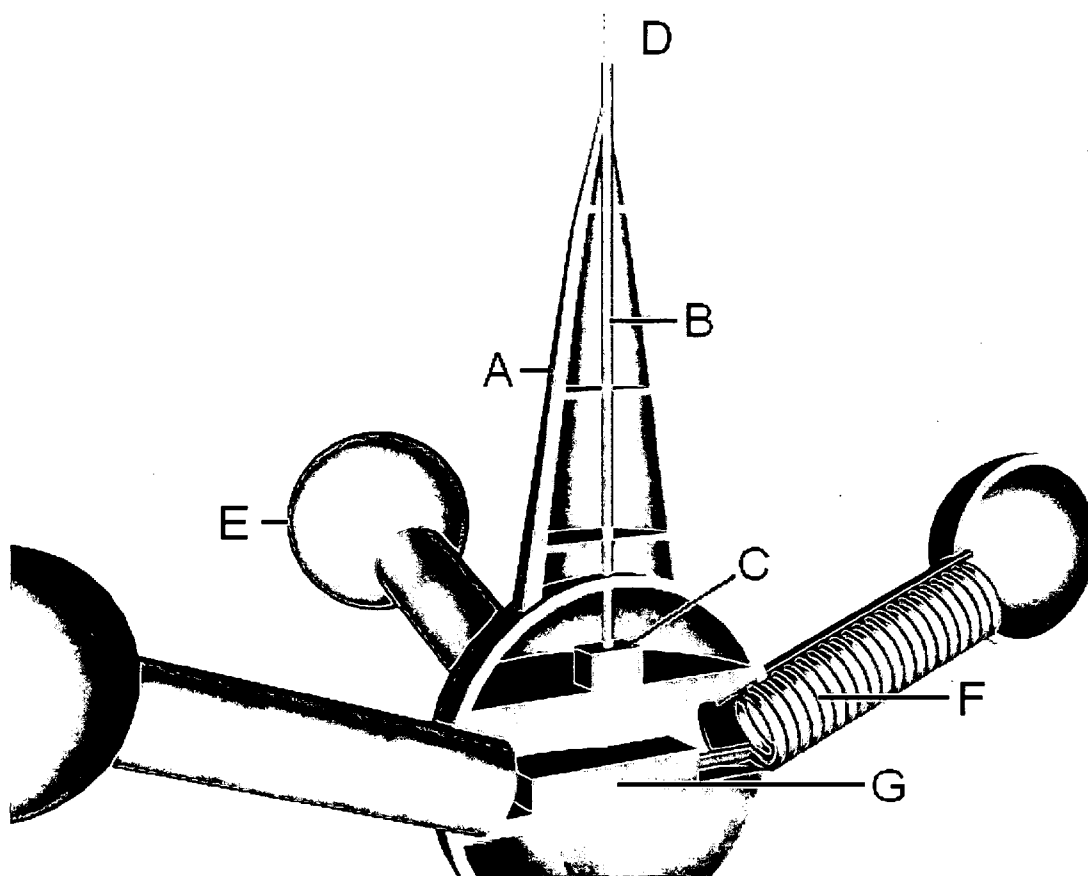


Figure 14



## ELECTRIC DIPOLE SPACECRAFT

## BRIEF SUMMARY OF THE INVENTION

[0001] This invention is a rotating spacecraft that utilizes four spherical conducting domes perturbing a uniform electric field in order to create a lift force by means of a magnetic moment times the gradient of a magnetic field.

## BACKGROUND OF THE INVENTION

[0002] An electric dipole  $p$  is two electrical charges of opposite sign  $\{q, -q\}$  separated by a distance  $a$ .

$$p = qa = \text{coulomb} \cdot \text{meter}$$

[0003] If this dipole is moving with a velocity  $v$ , it produces a magnetic moment  $\mu$ .

$$\mu = pv = qav = \text{coulomb meter} \frac{\text{meter}}{\text{sec}} = \frac{\text{coulomb}}{\text{sec}} \text{meter}^2 = I \text{Area}$$

[0004] The magnetic moment is equal to a current  $I$  circulating around an area. The magnetic field  $B$  has units of kilogram per second per charge coulomb.

$$B = \frac{\text{kg}}{\text{sec coul}}$$

[0005] The gradient of the magnetic field in the vertical direction  $z$  has units of

$$\frac{dB}{dz} = \frac{\text{kg}}{\text{sec coul meter}}$$

[0006] This gradient interacting with a magnetic moment creates a force  $F$  measured in newtons.

$$F_z = \mu \frac{dB}{dz} = \frac{\text{coul m}^2}{\text{sec}} \frac{\text{kg}}{\text{sec coul m}} = \frac{\text{kg m}}{\text{sec}^2} = \text{newton}$$

[0007] In terms of vectors, the force is equal to

$$F = \nabla(\mu \cdot B)$$

which is the gradient  $\nabla$  of the dot product  $(\cdot)$  of the magnetic moment with the magnetic field. This means that the magnetic moment has to be aligned with the field. The lift force on the spacecraft would then be the magnetic moment in the vertical  $z$ -direction  $\mu_z$  times the magnetic field in the  $z$ -direction  $B_z$ . For constant magnetic moment, the gradient affects the magnetic field only, resulting in the same force equation

$$F_z = \nabla(\mu_z \cdot B_z) = \mu_z \nabla B_z$$

[0008] Referring to FIG. 1, the electric dipole has a positive charge  $q$  located on the  $z$ -axis at a distance  $a$  from the origin of the graph. A second negative charge  $-q$  is located at a distance  $-a$  from the origin. The positive charge produces an electrostatic potential  $\phi_1$  at a radius  $r_1$  equal to the charge  $q$  divided by  $4\pi$  times the permittivity of space  $\epsilon_0$

$$\phi_1 = \frac{q}{4\pi\epsilon_0} \frac{1}{r_1}$$

where the permittivity is linear capacitance, measured in farads per meter. The electrostatic potential has units of volts

$$\phi = \frac{\frac{\text{coul}}{\left(\frac{\text{farad}}{\text{meter}}\right)} \frac{1}{\text{meter}}}{\text{meter}} = \frac{\text{coul}}{\text{farad}} = \text{volt}$$

because the charge in coulombs held by a capacitor is equal to the capacitance, measured in farads, times the capacitor voltage. Because the second charge has the opposite sign, the potential  $\phi_2$  at a radius  $r_2$  to the same point in space is

$$\phi_2 = \frac{-q}{4\pi\epsilon_0} \frac{1}{r_2}$$

[0009] The total potential  $\phi$  at some point in space is equal to the sum of the two potentials, or

$$\phi = \phi_1 + \phi_2 = \frac{q}{4\pi\epsilon_0 r_1} - \frac{q}{4\pi\epsilon_0 r_2} = \frac{q}{4\pi\epsilon_0} \left[ \frac{1}{r_1} - \frac{1}{r_2} \right]$$

[0010] As seen in the diagram, the point of space is a distance  $r$  from the origin. Using the law of cosines, radius  $r_1$  can be written as

$$r_1 = (r^2 + a^2 - 2ar\cos(\theta))^{1/2} = r \left( 1 + \left(\frac{a}{r}\right)^2 - 2\left(\frac{a}{r}\right)\cos(\theta) \right)^{1/2} = r(1 - 2xt + t^2)^{1/2}$$

where  $t$  is the ratio of the charge location over the radius, and  $x$  is  $\cos(\theta)$ . The potential for positive charge  $q_1$  can be written

$$\phi_1 = \frac{q}{4\pi\epsilon_0} \frac{1}{r_1} = \frac{q}{4\pi\epsilon_0} \frac{1}{r} (1 - 2xt + t^2)^{-1/2}$$

[0011] Dropping the factor  $q/4\pi\epsilon_0 r$ , the square root can be expressed in terms of the Legendre polynomial  $P_n \cos(\theta)$  of the  $n$ th power

$$g(t, x) = (1 - 2xt + t^2)^{-1/2} = \sum_{n=0}^{\infty} P_n(x) t^n$$

where the absolute value of  $t$  is less than one. The polynomial coefficients of  $t^n$  can be obtained by using the binomial theorem to expand the generating function  $g(t, x)$  as

$$(1 - 2xt + t^2)^{-1/2} = \sum_{n=0}^{\infty} \frac{(2n)!}{2^{2n}(n!)^2} (2xt - t^2)^n$$

which evaluates to

$$\frac{0!}{2^0(0!)^2} (2xt - t^2)^0 + \frac{2!}{2^2(1!)^2} (2xt - t^2)^1 + \frac{4!}{2^4(2!)^2} (2xt - t^2)^2$$

$$1t^0 + xt^1 + \left(\frac{3}{2}x^2 - \frac{1}{2}\right)t^2 + \text{order}(t^3)$$

[0012] The first three Legendre polynomials are therefore

$$P_0 = 1$$

$$P_1 = x$$

$$P_2 = \frac{1}{2}(3x^2 - 1)$$

[0013] The electrostatic potential for both charges of the electric dipole is

$$\varphi = \frac{q}{4\pi\epsilon_0 r} \left\{ \left( 1 - 2\left(\frac{a}{r}\right)\cos(\theta) + \left(\frac{a}{r}\right)^2 \right)^{-1/2} - \left( 1 + 2\left(\frac{a}{r}\right)\cos(\theta) + \left(\frac{a}{r}\right)^2 \right)^{-1/2} \right\}$$

[0014] The potential can be evaluated in terms of the Legendre polynomials as

$$\varphi = \frac{q}{4\pi\epsilon_0 r} \left[ \sum_{n=0}^{\infty} P_n(\cos(\theta)) \left(\frac{a}{r}\right)^n - \sum_{n=0}^{\infty} P_n(\cos(\theta)) (-1)^n \left(\frac{a}{r}\right)^n \right]$$

$$= \frac{2q}{4\pi\epsilon_0 r} \left[ P_1(\cos(\theta)) \left(\frac{a}{r}\right) + P_3(\cos(\theta)) \left(\frac{a}{r}\right)^3 + \dots \right]$$

[0015] The first and most dominant term when the radius is much greater than location a is equal to

$$\varphi = \frac{2aq}{4\pi\epsilon_0} \frac{P_1(\cos(\theta))}{r^2}$$

which is the electric dipole potential and 2aq is the dipole moment

$$p=2aq$$

[0016] Now imagine a constant electric field  $E_0$  which is perturbed by a conducting sphere of radius a. The unperturbed electrostatic potential outside the sphere would be the negative of the electric field times the radius times the Legendre polynomial, or

$$\Phi_1 = -E_0 r P_1$$

[0017] The electrostatic potential perturbed by the charges is the voltage  $E_0 a$  times the radius a times the a of the dipole

moment times the Legendre polynomial divided by the radius squared

$$\varphi_2 = E_0 a a \frac{P_1}{r^2} = E_0 a^3 \frac{P_1}{r^2}$$

[0018] The total potential outside the sphere is the sum of the two potentials equal to

$$\varphi = -E_0 r P_1 + E_0 a^3 \frac{P_1}{r^2} = -E_0 P_1 \left( r - \frac{a^3}{r^2} \right) = -E_0 r P_1 \left( 1 - \left( \frac{a}{r} \right)^3 \right)$$

[0019] Referring to **FIG. 2**, the previously uniform electric field is shown perturbed by the neutral conducting sphere. The center of the sphere is taken as the origin and the z-axis is oriented parallel to the original uniform field.

[0020] The electric field induces a surface charge density  $\sigma$  on the sphere equal to the negative of the permittivity of space times the gradient of the electrostatic potential

$$\sigma = -\epsilon_0 \frac{\partial \varphi}{\partial r} \Big|_{r=a} = 3\epsilon_0 E_0 \cos(\theta)$$

[0021] The electric field also induces an electric dipole moment on the sphere equal to the

$$p = \frac{qa}{r} \cdot \frac{2a^2}{r} = 4\pi\epsilon_0 E_0 a^3$$

with units of coulomb-meter. If this sphere is rotating around a central axis at a velocity v, it will create a magnetic moment  $\mu$  equal to the dipole moment times the velocity.

$$\mu = p v$$

with units of ampere-meter<sup>2</sup>.

## SUMMARY OF THE INVENTION

[0022] As shown in the preceding background section, a neutral conducting sphere placed in a uniform electric field will generate a magnetic moment when rotated around a central axis. The electric field can be created by two points charges of opposite sign separated by a distance between them.

[0023] Referring to **FIG. 3**, the spacecraft has a spherical cabin (A) to which are attached cone-shaped electrostatic towers (B,C) above and below the cabin along the direction of travel in the z-direction. Because the electric field goes from the positive charge to the negative charge, the tip of the lower tower has a positively charged electrode, and the upper tower has a negatively charged electrode. Four equally-spaced neutral conducting spheres (D) are connected to the cabin by non-conducting tubes (E). The tubes make an angle with the cabin such that the distance (CD) is greater than distance (DB). The angle  $\theta$  of the tube with respect to the cabin can be seen in side view **FIG. 4**.



[0024] Referring to FIG. 5, the charges create a uniform spherical field between the towers. The conducting spheres perturb this field such that the electric field (E) points toward the upper tower in a manner similar to that shown previously in FIG. 2.

[0025] Referring to FIG. 6, the conducting sphere produces an electric dipole moment (A) pointing at an angle toward the upper tower.

[0026] Referring to FIG. 7, by the law of addition of vectors, the electric dipole  $\vec{p}$  can be represented by two orthogonal vectors pointing in the vertical z-direction  $p_z$  and in the inward radial direction  $p_r$ .

[0027] Referring to FIG. 8, the hollow tube (A) connecting the cabin with the conducting sphere contains a spiral-wound electrical solenoid (B) which produces a magnetic field (C). This magnetic field B can be decomposed into two orthogonal vectors pointing in the vertical z-direction  $B_z$  and in the outward radial direction  $B_r$  as shown in FIG. 9.

[0028] Referring to top-view FIG. 10, the spacecraft has a clockwise angular velocity  $\omega$  (A) which gives the conducting sphere a velocity  $v$  as shown by the vector (B). By the right-hand rule of physics, the angular velocity vector points in the negative z-direction. The angular velocity in the z-direction crossed with the radius  $r$  in the radial direction produces a velocity  $v$  in the clockwise  $\theta$ -direction using cylindrical coordinates  $\{r, \theta, z\}$ .

$$v_\theta = \omega r \times r_r = -\omega r$$

[0029] Referring to FIG. 11, the negative radial dipole moment  $p_r$  crossed with the negative velocity  $v_\theta$  of the sphere produces a positive magnetic moment  $\mu_z$  in the z-direction.

$$\mu_z = p_r \times v_\theta = (-p_r)(-v_\theta) = p_r v$$

[0030] Referring to FIG. 12, the magnetic field  $B_z$  in the vertical z-direction is dotted with the magnetic moment  $\mu_z$  in the z-direction to produce a force  $F_z$  in the vertical z-direction on each conducting sphere (FIG. 13).

$$F_z = \nabla(\mu_z B_z) = \mu_z \nabla B_z$$

[0031] The magnetic field that is produced by the solenoid actually curves away and around. Thus there is a gradient of the field in the z-direction.

[0032] The force can also be expressed in tensor notation. The magnetic B field in the vertical direction is part of an electromagnetic 4x4 matrix Faraday tensor F

$$F_{\beta}^{\alpha} = \begin{matrix} \beta = t & r & \theta & z \\ \alpha = t & 0 & 0 & 0 \\ \alpha = r & 0 & 0 & B_z \\ \alpha = \theta & 0 & -B_z & 0 \\ \alpha = z & 0 & 0 & 0 \end{matrix}$$

which shows that the magnetic field is located in slot  $F_{\theta}^r$  of the Faraday tensor. In tensor notation the subscripts and superscripts have to match up on both sides of the equation. Matching subscripts and superscripts on the same side of the equation cancel. In this case, the electric dipole moment is

in the radial direction  $p_r$ . The velocity can be represented as a time derivative of the  $\theta$ -coordinate  $x^\theta$  or

$$v^\theta = \frac{\partial x^\theta}{\partial t}$$

[0033] Thus the force component in the z-direction becomes

$$F_z = p_r v^\theta F_{\theta,z}^r = (-p_r)(-v) \frac{\partial B_z}{\partial z} = p_r v \frac{\partial B_z}{\partial z}$$

where the angular and radial tensor components cancel and comma-z (, z) represents differentiation of the magnetic field in the z-direction.

[0034] The spacecraft design also has an inherent motion control system for moving in various directions. If the magnetic field of one solenoid arm is increased or decreased, the force on that sphere will be increased or decreased. Thus the spacecraft can turn in a particular direction.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

[0035] FIG. 1. Electric dipole.

[0036] FIG. 2. Uniform electric field perturbed by electric dipole.

[0037] FIG. 3. Perspective view of spacecraft.

[0038] FIG. 4. Angle of solenoid tube.

[0039] FIG. 5. Electric field perturbed by conducting sphere.

[0040] FIG. 6. Electric dipole generated by conducting sphere.

[0041] FIG. 7. Orthogonal vector components of electric dipole.

[0042] FIG. 8. Magnetic field produced by tube arm solenoid.

[0043] FIG. 9. Orthogonal vector components of magnetic field.

[0044] FIG. 10. Angular velocity of hull.

[0045] FIG. 11. Magnetic moment produced by radial electric dipole and sphere velocity.

[0046] FIG. 12. Dot product of the magnetic moment with the magnetic field.

[0047] FIG. 13. Vertical lift force on all four conducting spheres.

[0048] FIG. 14. Perspective view of spacecraft interior.

#### DETAILED DESCRIPTION OF THE INVENTION

[0049] 1. Referring to the cut-away view FIG. 14, the construction of the spacecraft is a thin-wall insulating thermoplastic having a dielectric constant in the range of 20 kilovolts per millimeter (A). An insulated electrode (B) runs from the cabin power supply and high-voltage transformer

(C) to the tip of each tower (D). The four spheres (E) are silver plated to make them conducting. The tube solenoids (F) are driven by a direct current power supply (G).

[0050] 2. The present model uses 3D computer design software and stereolithography fabrication techniques to create the thin-wall, low-weight, hollow structure of the hull. The computer model is sliced into many thin horizontal slices. A laser, mounted on an x-y table, draws out the slice on a table immersed in a bath of liquid polymer. Due to its sensitivity to the light, the liquid polymerizes. The table is then lowered a few thousandths of an inch more and the process is repeated. Thus making hollow spherical and conical shapes is extremely easy to do. Parts can be designed and stored in \*.STL stereolithography files for transmission by Internet e-mail to the service bureau machine shop which sends the finished parts back the next day by express mail.

I claim:

1. A spacecraft comprising:

- a. a spherical cabin;
- b. an electrostatic conical tower mounted on top of item (1a), supporting a vertically-mounted negatively-charged insulated electrode at the tip of the tower;
- c. an electrostatic conical tower mounted on the bottom of item (1a), supporting a vertically-mounted positively-charged insulated electrode at the tip of the tower;
- d. a vertical electric dipole created by items (1b) and (1c);
- e. a high-voltage transformer to drive item (1d), mounted in item (1a);

- f. four tubular arms, mounted at 90° around and extending at an angle from item (1a);
- g. four solenoids, each of which is mounted axially inside item (1f);
- h. a direct current power supply to drive item (1g);
- i. four silver-plated conducting spheres, each of which is mounted on the end of item (1f);
- 2. an electrostatic lift system that:
  - a. produces a uniform spherical electric field by means of item (1d) which envelopes item (1i);
  - b. produces a perturbed electric field due to the presence of item (1i);
  - c. produces an electric dipole moment in the direction of item (1b) due to items (2a) and (2b);
  - d. produces a vertical magnetic moment due to the clockwise angular velocity of item (1a) combined with item (2c);
  - e. produces a vertical lift force on item (1i) due to item (2d) combined with the magnetic field gradient in the vertical direction produced by item (1g); and
  - f. creates a motion control system by varying the current to item (1g) in order to increase or decrease the effect of item (2e) on a particular item (1i).

\* \* \* \* \*



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(54) **MAGNETIC MONOPOLE SPACECRAFT**

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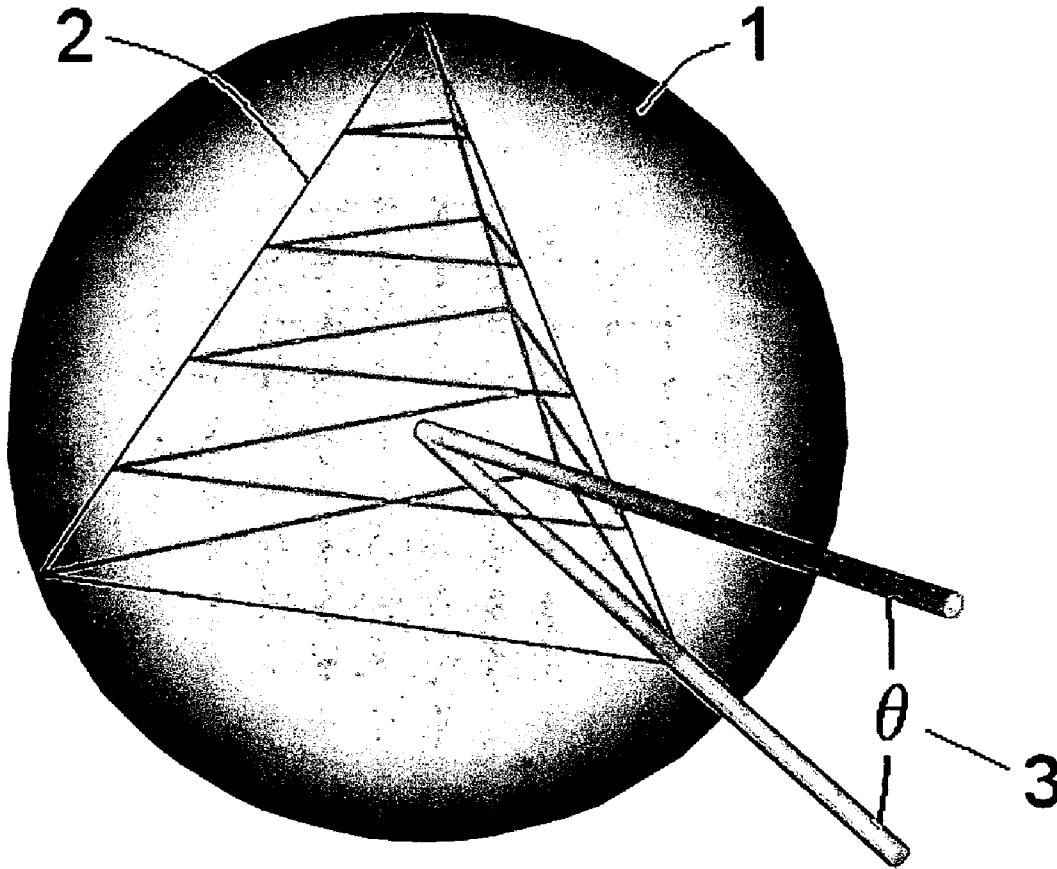
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**52 KINGS COURT, 4A**  
**SAN JUAN, PR 00911 (US)**

(57) **ABSTRACT**

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(22) **Filed: Jan. 31, 2005**

A spacecraft propulsion system that utilizes a dual method of providing lift on the hull by means of magnetic monopoles and electromagnetic spacetime curvature pressure.



**Figure 1**

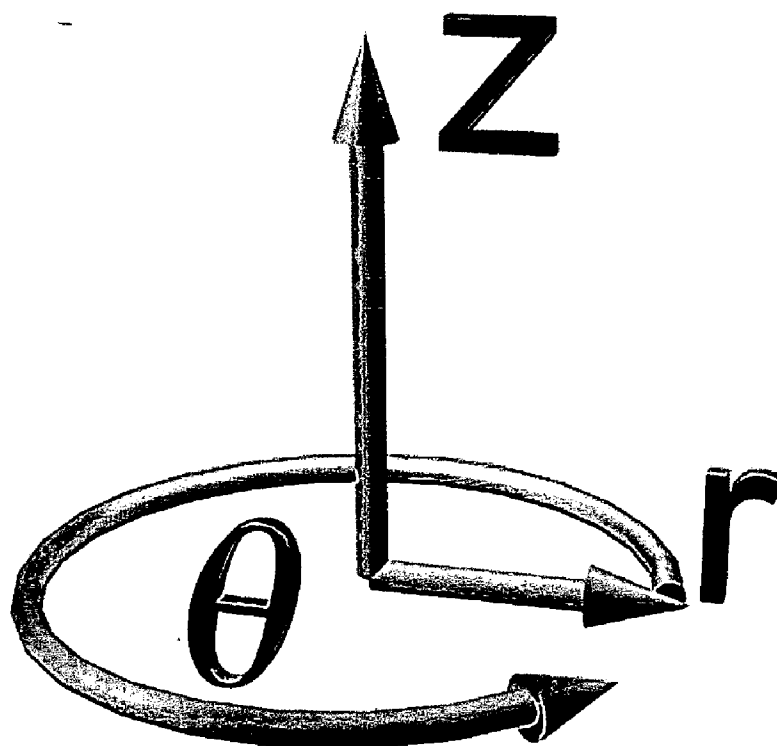


Figure 2

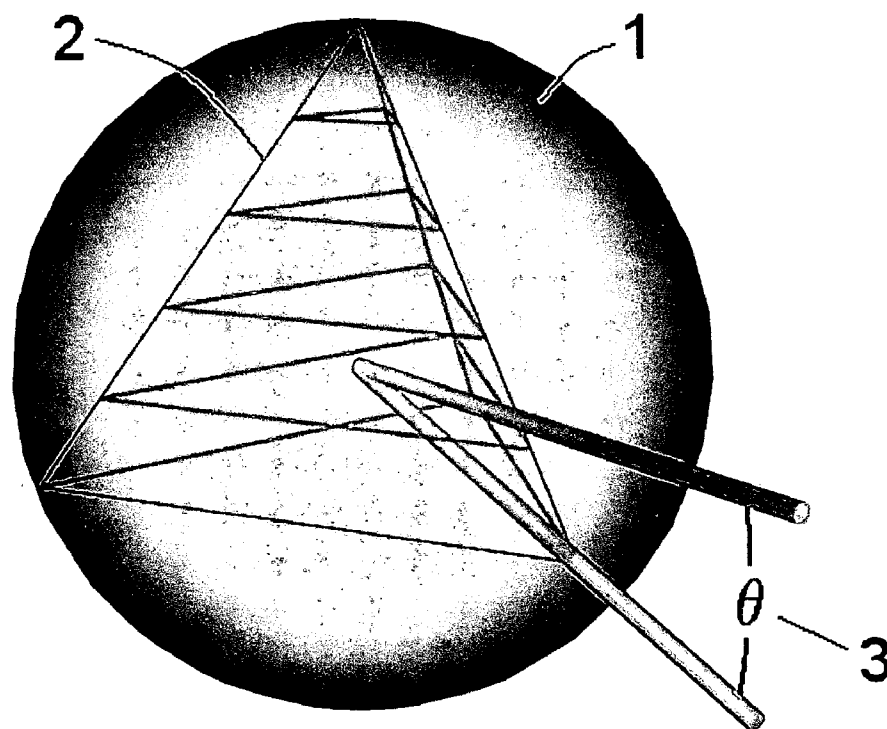
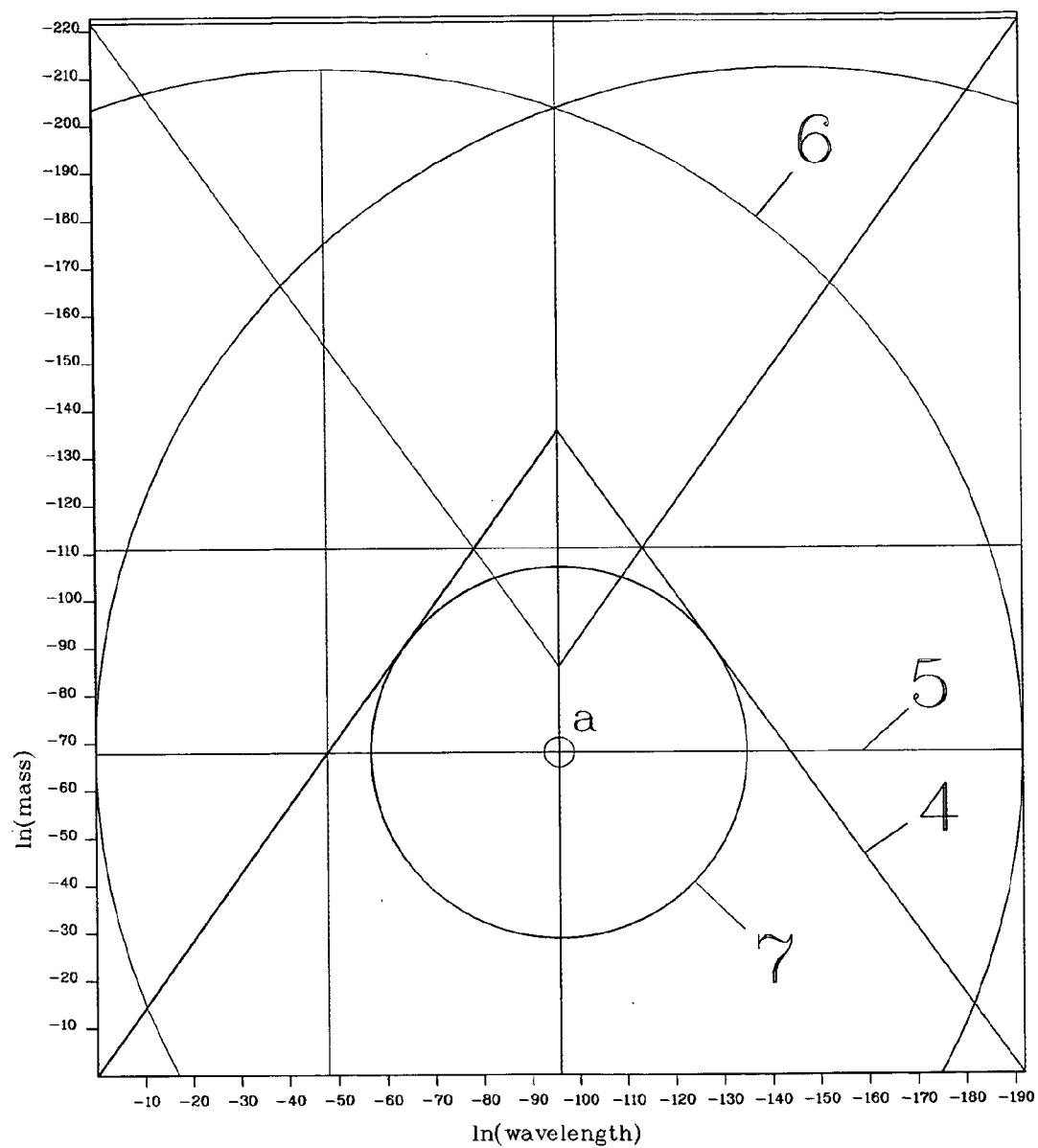


Figure 3



**Figure 4**

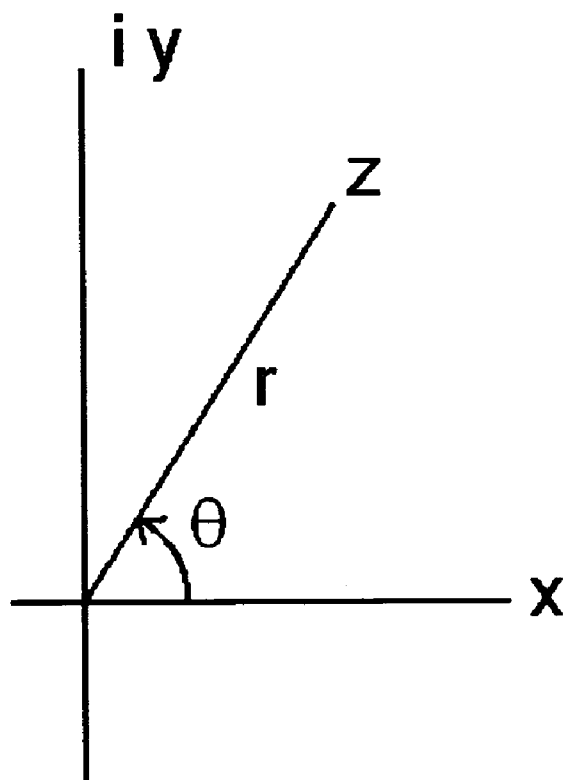
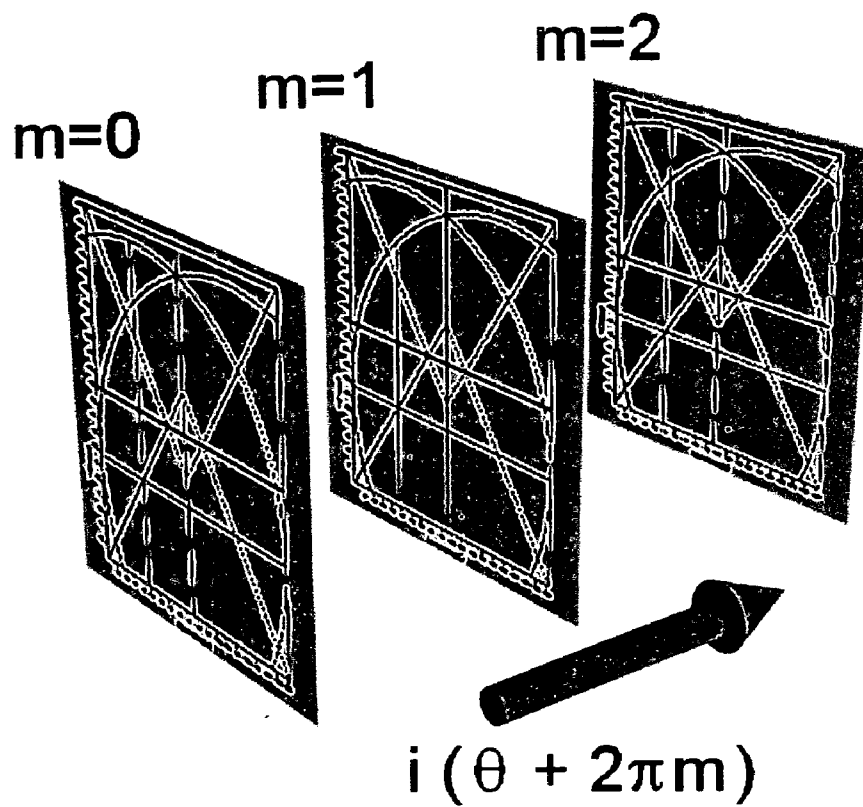
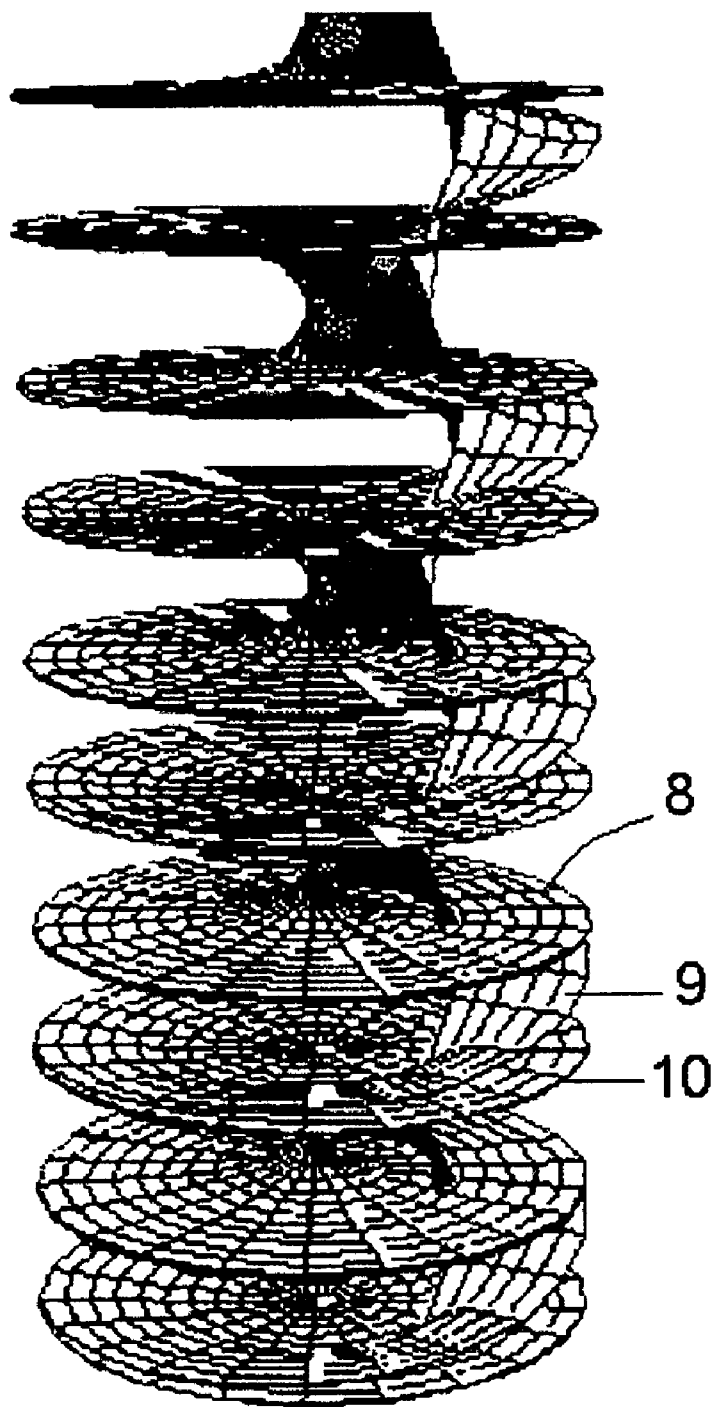


Figure 5

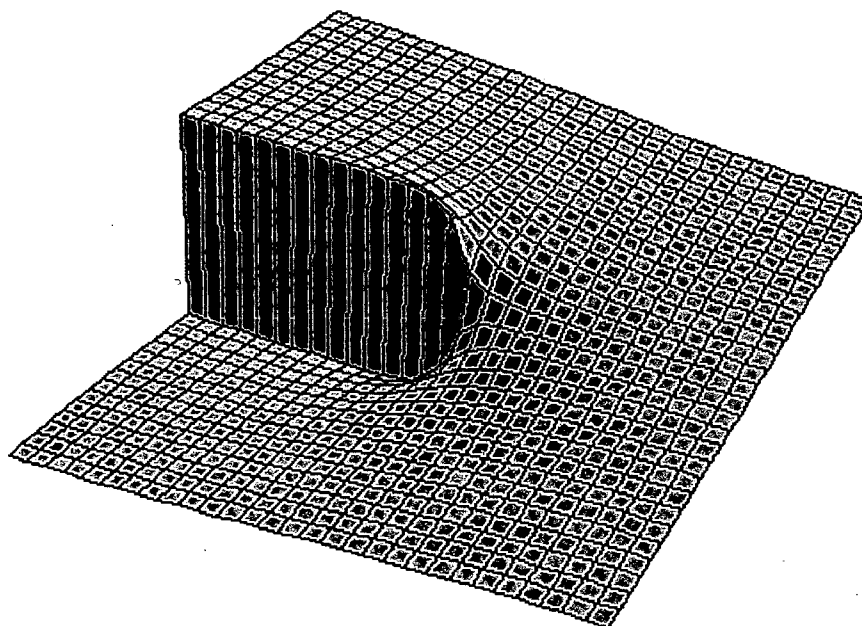




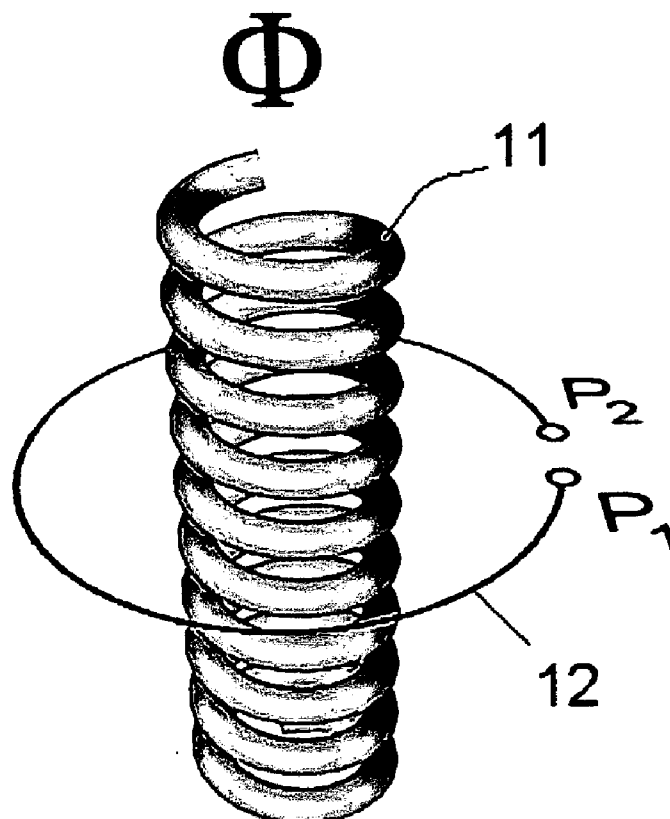
**Figure 6**



**Figure 7**



**Figure 8**



**Figure 9**

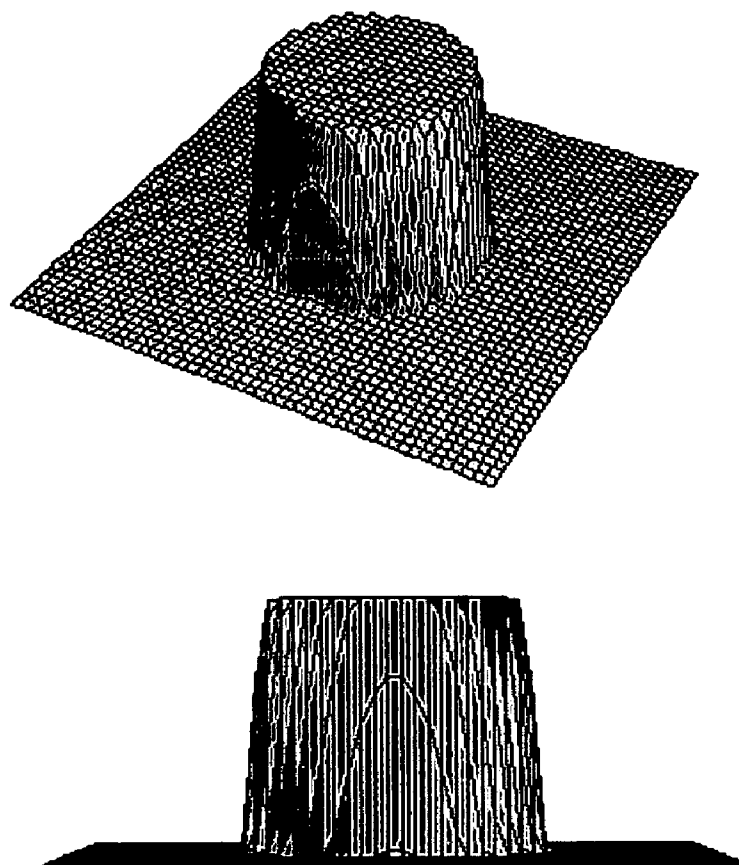


Figure 10

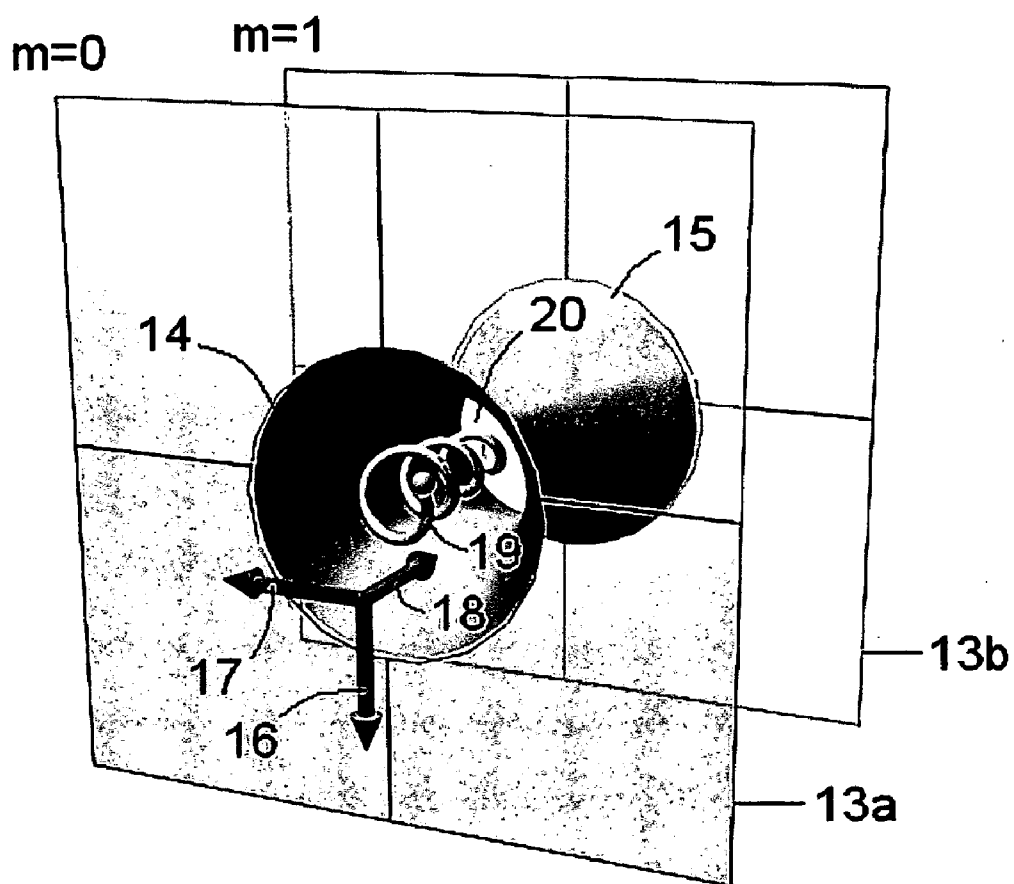


Figure 11

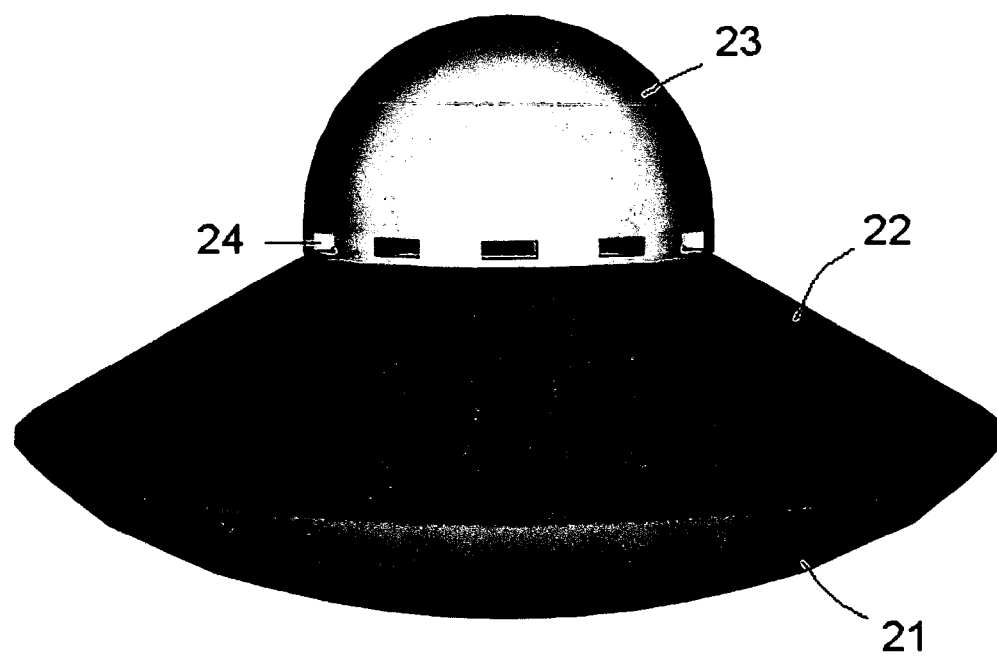


Figure 12

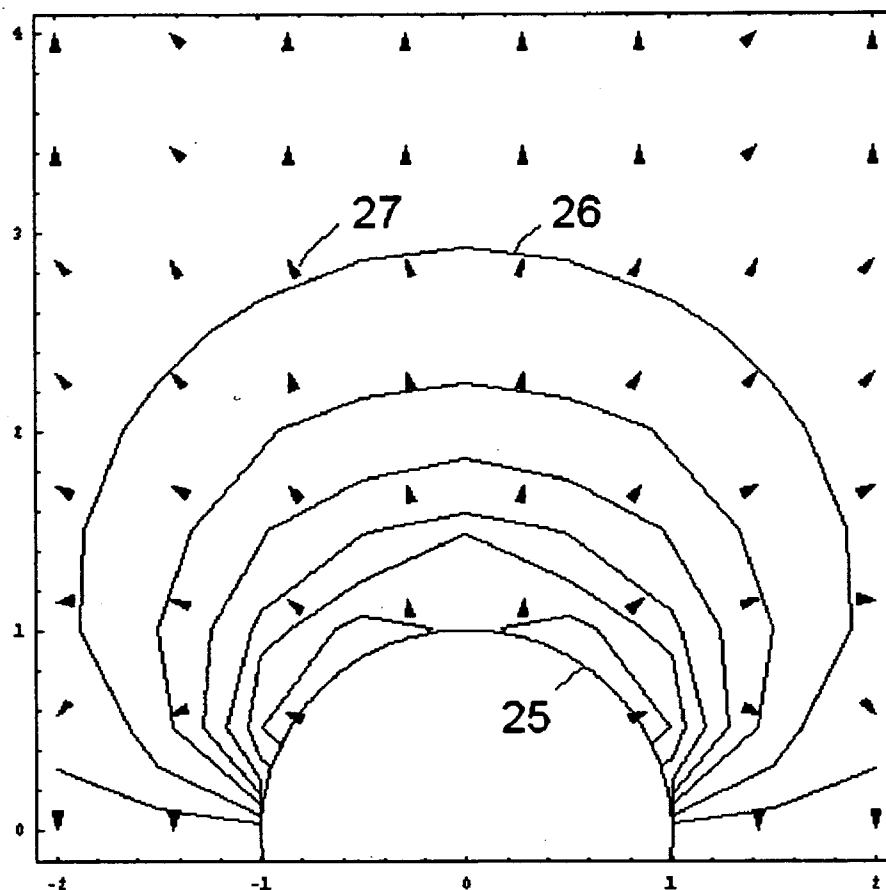


Figure 13

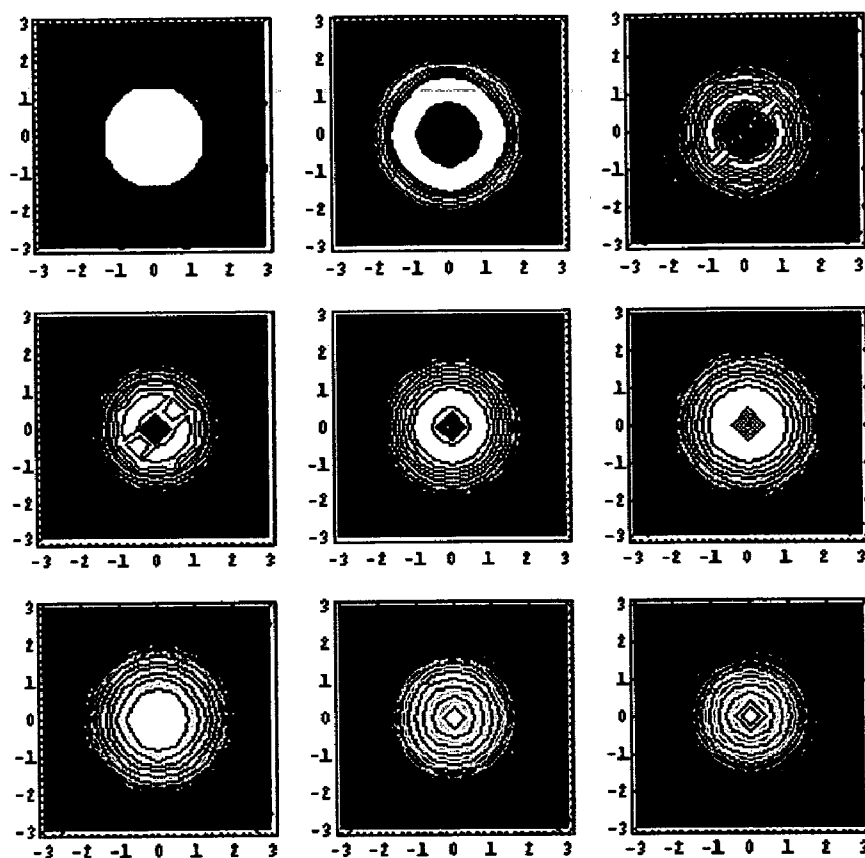




Figure 14

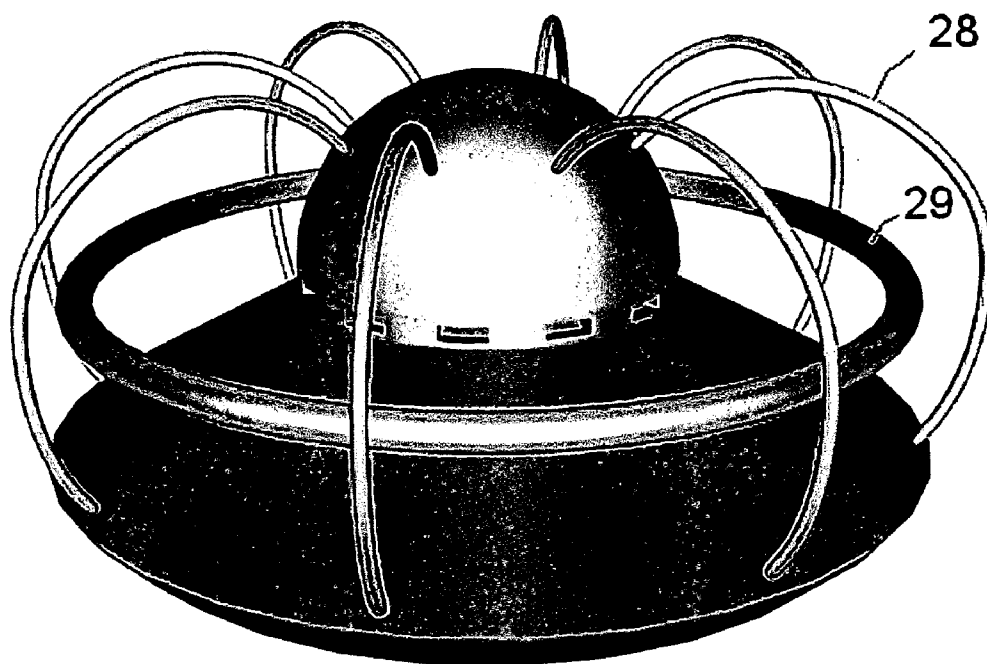


Figure 15

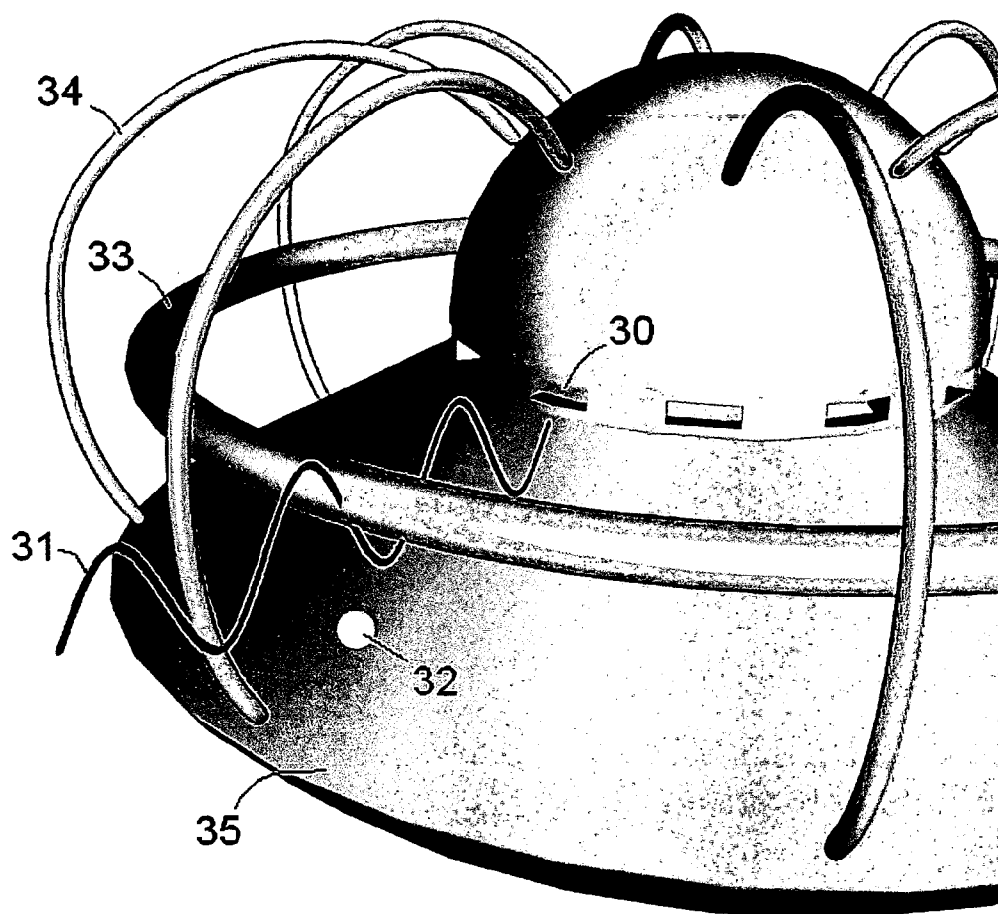
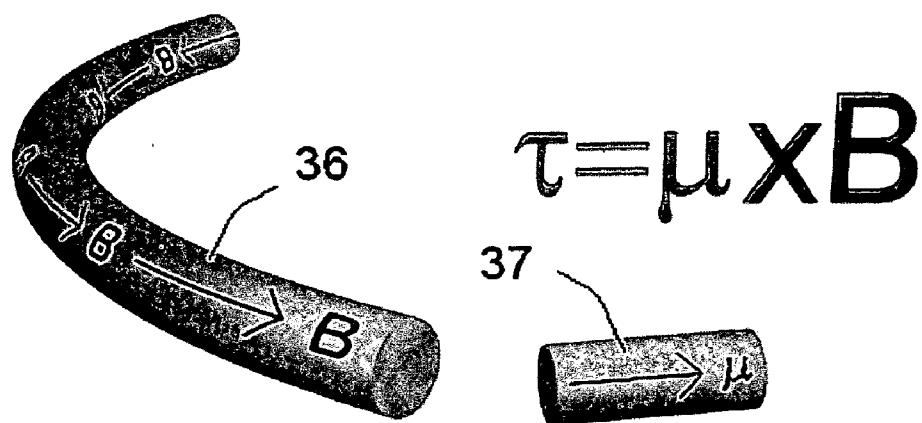
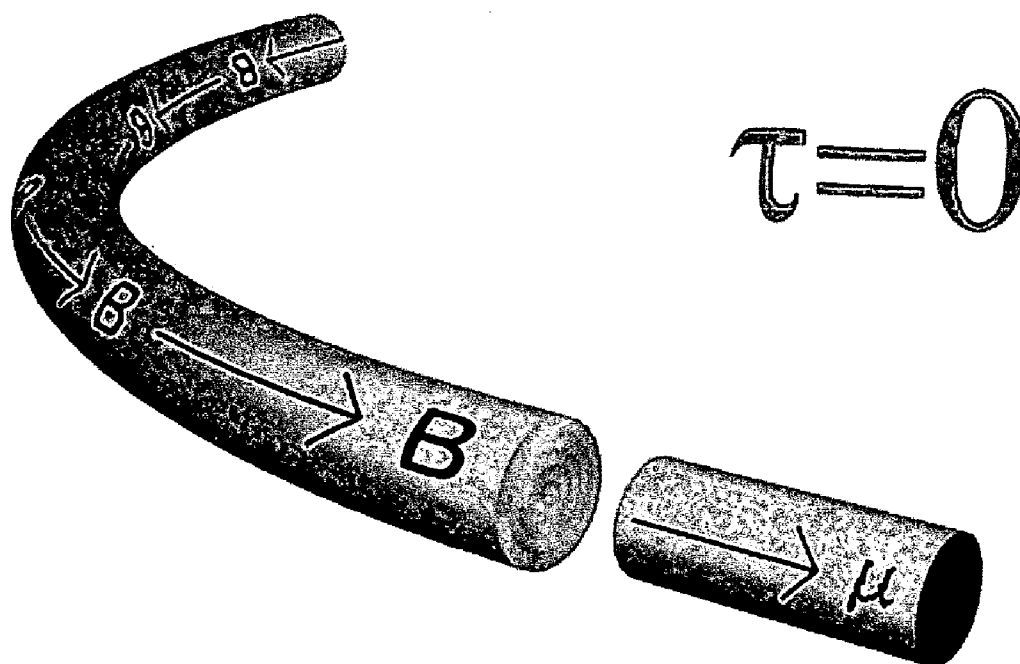
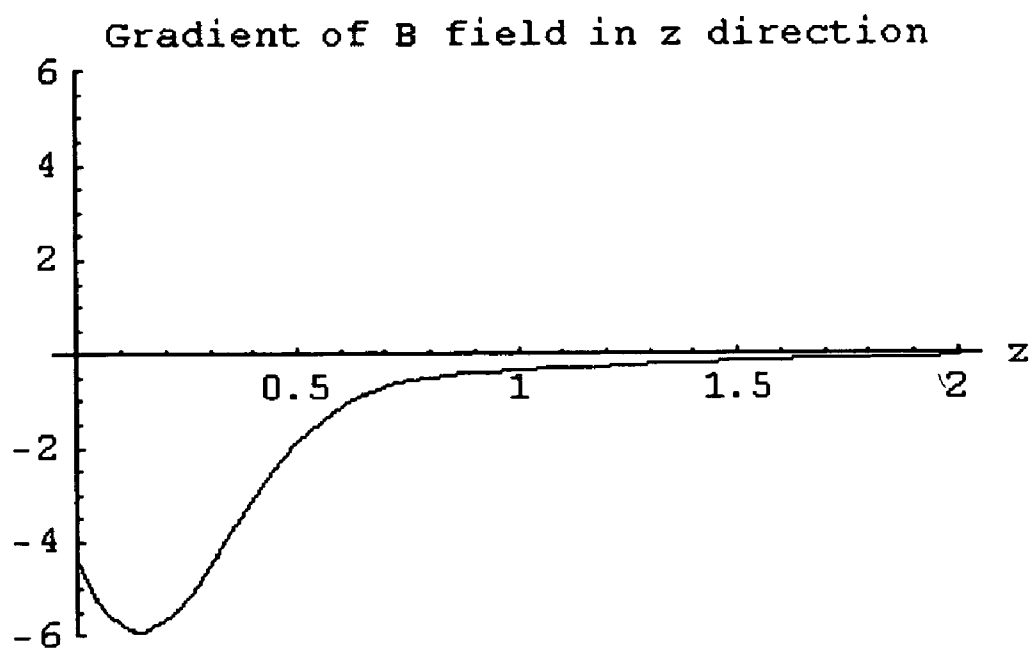


Figure 16



**Figure 17**



**Figure 18**

## MAGNETIC MONOPOLE SPACECRAFT

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention is a spacecraft propulsion system that generates a field of wormholes which are threaded with a magnetic field. Acting as two attracting magnets, the spacecraft's north magnetic field is attracted to the constantly regenerating south magnetic monopoles of the wormholes which provides lift on the hull.

### BACKGROUND OF THE INVENTION

[0002] According to one of Maxwell's electromagnetic equations, the curl of the electric E field is equal to the negative time rate of change of the magnetic flux density B field.

$$\nabla \times E = -\frac{\partial B}{\partial t}$$

The curl can be thought of as a circulation around a closed loop specified by the right-hand rule where the fingers curl in the direction of the electric field and the thumb represents the changing magnetic flux density field through the area of the loop. At no time is the electric field diverging around the loop. That is, the divergence of the curl is zero which is a well-known vector operation

$$\text{div curl} E = \frac{\partial}{\partial t}(\text{div} B) = 0$$

The partial derivatives of divB are zero at all points in space. Performing the integration, therefore, the divergence of B is equal to a constant

$$\text{div } B = \text{constant}$$

[0003] Referring to FIG. 1, the following discussion is made in cylindrical coordinates  $\{r, \theta, z\}$ . In cylindrical coordinates, the divergence of the radial B field, div B, is equal to a constant C

$$Br'[r] + \frac{Br[r]}{r} = C$$

where the prime (') represents differentiation with respect to the radius r. The solution to this equation resides in determining the constant C. In the vacuum of space without any wormholes, the constant C is zero. Because the spacecraft is surrounded by a field of wormholes, there is a magnetic flux density field threading each one. That is, each wormhole is actually a magnetic monopole, and therefore the entire field of monopoles constitutes a large magnet with one pole in this dimension and the other pole in the hyperspace dimension.

[0004] The concept of the wormhole involves a new type of scientific thinking involving the creation of a gateway between our spacetime and that of a hyperspace co-dimension. The gateway is created electromagnetically as shown by my patent applications Rotating Magnetic Vortex Gen-

erator, Magnetic Vortex Wormhole Generator, and Sulfur 8 Wormhole Generator. The gateway can also be created ultrasonically through bubble cavitation as shown in my patent application Cavitating Oil Hyperspace Energy Generator. In one experiment, smoke was blown through one side of the coil of the magnetic vortex wormhole generator and no smoke came out the other side. The smoke was blown through the wormhole into another dimension.

[0005] The existence of hyperspace is not generally known in the scientific community. The reason it exists can be thought of in the following manner. Referring to FIG. 2, the corners of a tetrahedron (2) circumscribed by a sphere (1) touch the sphere at an angle (3) of  $-19.47^\circ$ . Looking at the planets of the solar system, the Giant Red Spot vortex of Jupiter, which can hold two planets the size of Earth, is located at this angle. On Mars, the Olympic Mons volcano, which is the size of France, is located at north  $19.5^\circ$ . Here in the Caribbean there is a slow moving rock mantle vortex at north  $19.5^\circ$  that curves the islands down toward Venezuela. So the geometry of space is related to the tetrahedron. What this suggests is that there is a subspace manifold whose tetrahedral geometry projects all the constants of physics into our dimension.

[0006] Referring to FIG. 3, this subspace geometry is shown in the tetrahedron diagram which plots the natural logarithm of mass on the vertical axis versus the natural logarithm of wavelength on the horizontal axis. With this diagram, it is possible to visualize the entire universe on a single sheet of paper. Triangle (4) is the tetrahedron whose vertical centerline shown by the small  $\pi$  circle (a) is equal to Planck's constant h divided by the speed of light c, known as the base constant. The base constant in logs is equal to  $-95.91546344$ . Line (5) is the diameter of the sphere (6). A circle (7), centered on (a), with a radius equal to the speed of light squared, is tangent to the tetrahedron. It can be shown that all the constants of physics, such as the speed of light squared and the Planck mass and the Planck wavelength, are determined geometrically by this logarithmic subspace tetrahedral geometry.

[0007] Referring to FIG. 4, the complex plane consists of a real horizontal axis, and a complex vertical axis where the value of the complex number z is given by a radius r and an angle  $\theta$

$$z = re^{i(\theta + 2\pi m)}$$

The logarithm of z is

$$\text{Log}[z] = \text{Log}[r] + i(\theta + 2\pi m)$$

where m is an integer  $m=0, 1, 2, \dots$  corresponding to multiple rotations of  $2\pi$ . What this means in terms of the tetrahedron diagram, referring to FIG. 5, is that there are multiple diagrams separated by  $2\pi$  rotations. Each multiple is another hyperspace dimension. Only the log manifold has this characteristic. Referring to FIG. 6, the hyperspace dimension, shown as  $2\pi$  circular surface (8), has a cut (9) on the undefined Log[0] origin line such that another hyperspace dimension is created below it (10).

[0008] Referring to FIG. 7, this branch cut does not bring one back to the original surface nearing the origin. It takes one down to another level of the universe into another hyperspace dimension. I can attest personally that I have been able to look into another hyperspace co-dimension as well as jump into another dimension.

[0009] Furthermore, Dr. Stephen Hawking of Cambridge University has shown that our dimension is connected to a wormhole through complex time. That is, the hyperspace dimension is rotated forward by 90° which makes it orthogonal to us. While this is the mathematical explanation as to why there are hyperspace co-dimensions, I can attest personally to the fact, as described in my patent application Full Body Teleportation, that I was teleported through hyperspace and returned to our dimension over a distance of 100 meters. Because hyperspace exists, it is then possible, using electromagnetic fields, to open wormholes between our dimension and other hyperspace dimensions.

[0010] Referring to FIG. 8, the constant C in the magnetic flux density B field equation is determined as follows. The end of a solenoid (11) is equivalent to a local magnetic source of flux  $\Phi$  which represents the wormhole. A charge (12) encircling the solenoid has the same value at P<sub>1</sub> and P<sub>2</sub> but there is a phase difference of  $2\pi n$  where n is an integer equal to the number of times the charge encircles the solenoid. The change in phase is equal to the charge q divided by Planck's reduced constant times the flux for a solenoid of radius r=R

$$\Delta\theta = 2\pi n = \frac{q}{\hbar}\Phi = \frac{q}{\hbar}B\pi R^2$$

Solving for the magnetic flux density field threading the wormhole

$$B = \frac{2\pi n\hbar}{q\pi R^2}$$

The differential equation becomes

$$Br'[r] + \frac{Br[r]}{r} = C[2]$$

Solving the equation for the radial field Br

$$Br[r] = \frac{C[2]r}{2} + \frac{C[1]}{r}$$

Equating this Br field with the B field and solving for the C[2] constant

$$C[2] = \frac{-2[-2\hbar n + qrC[1]]}{qr^2}$$

Substituting for C[2], the C[1] constant drops out and therefore the wormhole magnetic flux density field becomes a constant inside the throat radius R

$$Br = \frac{2\hbar n}{qR^2}$$

but the divergence moving from outside to inside the radius is a constant due to the discontinuity.

[0011] Referring to FIG. 9, the wormhole has a constant cylindrically-shaped magnetic field of radius R with a negative south pole due to the negative charge on the electron. Using a wormhole radius equal to one hundred times the electron radius with n equal to 10 turns, the magnetic flux density B field has a magnitude of  $1.4 \times 10^6$  tesla.

[0012] Referring to FIG. 10, the wormhole surface (14) is a connection through a throat area (20) between space and hyperspace (13) to another surface in hyperspace (15). The electron path (19) is actually spiraling down the surface of the wormhole. The magnetic flux density field (18) points into the wormhole such that the cross product of the electron velocity (16) with the field ( $\mathbf{v} \times \mathbf{B}$ ) points toward the outside rim of the wormhole. Because the electron has a negative charge, the force (17) on the electron ( $-\mathbf{q} \mathbf{v} \times \mathbf{B}$ ) is inward toward the centerline of the wormhole. Since one pole of the field is in space, and the other pole is in hyperspace, the wormhole appears to us as a magnetic monopole. The key to this invention is how to generate this magnetic wormhole field.

[0013] Referring to FIG. 11, the aluminum spacecraft is constructed of a flattened, shallow spherical lower hull (21), a circular upper hull with a flat sloping surface (22), a spherical dome cupola (23), and a cylindrical section (24) housing a circular array of radial microwave waveguides. Surfaces (22) and (23) are electrically charged, using high-voltage transformers, to an alternating electrostatic potential such that the potential on the dome is +V when the sloping hull has a -V potential and vice versa. This creates an electric field from the positively charged surface to the negatively charged surface.

[0014] Referring to FIG. 12, the dome (25) is charged to a positive potential. The spherical potential lines (26) emanate from the dome and curve around toward the sloping hull. The negative gradient of this potential field is the electric E field (27) which is perpendicular to the potential lines. The electric field lines from the dome then terminate on the sloping hull which can be seen in the lower right hand corner of the graph.

[0015] Looking down from above at the top of the dome, referring to FIG. 13, the oscillating electric field generates a circular oscillating magnetic field around the hull at various elevations. The last two graphs in the right-hand corner are near the top of the dome as seen by the smaller radius contour lines.

[0016] Referring to FIG. 14, the oscillating electric field lines (28) are between the dome and the sloping hull. The oscillating magnetic field (29) encircles the hull at the level of the microwave waveguides.

[0017] From gravitation physics, it is known that negative energy is required to open up the throat of the wormhole. In terms of differential forms mathematics, the negative energy is created by wedging the magnetic field with the radial

microwave beams of the waveguides. This generates an increasing time rate of change of negative energy  $\rho$  as shown by

$$*d(B^{\wedge}(B_{\text{wave}} + E_{\text{wave}}dt)) = \frac{\partial(-\rho)}{\partial t}$$

where (\*) is the Hodge Star operator, (d) the differential operator and ( $\wedge$ ) the wedge operator which joins the circular magnetic flux density B field with the electromagnetic wave ( $B_{\text{wave}}, E_{\text{wave}}$ ).

[0018] Referring to FIG. 15, the interaction of the circular magnetic field (33), generated by the oscillating electric field (34), interacts with the radial electromagnetic field of the microwave beams (31) of the waveguides (30) to generate negative energy (32) over the sloping hull (35).

[0019] This combination of fields also creates the wormhole field over the hull. The spacetime curvature pressure T in the vertical z-direction is equal to the square of the circular magnetic flux density field

$$T^{zz} = \frac{B^2}{8\pi}$$

This stress-energy-momentum tensor can be thought of as a spacetime curvature proportional to the inverse of the radius squared, or as a pressure term which acts on the surface area of the hull. Thus there is the combination of a pressure stress and negative energy which creates the wormhole field over the sloping hull. Even though the magnetic flux density B field is oscillating, it is the square of the field which creates the stress. Thus the tension is still in the positive vertical z-direction.

[0020] Due to the low speed of light of hyperspace, the hyperspace energy is low density. Thus there is a positive gravitational potential between hyperspace and our dimension such that the hyperspace energy flows through the wormholes and onto the hull of the spacecraft. When this happens, a white mist forms over the hull. The effect of the hyperspace energy is to lessen the mass of the spacecraft, and relativistically increase the strength of the electromagnetic fields due to the smaller speed of light.

[0021] Referring to FIG. 16, the circular magnetic flux density field (36) is interacting with the magnetic monopole (37). The monopole acts as one pole of a magnet and therefore has a magnetic moment equal to the area times the electrical current circulating through it as the electrons move from our dimension into hyperspace. The great physicist Maxwell (1870) pointed out that the energy associated with charges and poles is potential energy and that therefore these objects tend to move in a direction that will decrease the potential energy, similar to a brick sliding down an inclined plane. Now to reduce the potential energy is the same as to reduce the field which gives a measure of the potential energy. If two like charges are brought together they strengthen one another's field, while opposite charges reduce one another's field. Thus like charges repel and unlike ones attract.

[0022] However, the energy associated with electric currents is not potential but kinetic in origin, because it is associated with moving charges. Now in mechanics it is well known that bodies move in a direction to increase their kinetic energy, if there is a source of external energy. The magnetic field of currents is a measure of kinetic energy and currents will try to move in a direction that will increase the field. Thus similarly-directed currents attract and unlike currents repel. In FIG. 16, the monopole will act so as to increase the field of the circular magnetic B field generated by the spacecraft. The monopole will then rotate into alignment with the flux tube. This increases the field strength of the flux tube. There is a torque  $\tau$  on the monopole equal to the cross product of the magnetic moment with the B field

$$\tau = \mu \times B$$

[0023] Referring to FIG. 17, when the monopole is aligned with the flux tube, the cross product is zero and there is zero torque on the monopole. Notice that even if the oscillating B field points in the opposite direction, there is still zero torque since the torque depends on the sine of the angle between them. The  $\sin(0^\circ)$  or  $\sin(180^\circ)$  is the same zero value. With the monopole aligned with the flux tube, the kinetic energy is now maximized. That is, both the flux tube and the monopole point in the  $\theta$ -direction.

[0024] The magnetic B field can be represented as a vector having three components. The only component is in the angular direction

$$B = \{B_r, B_\theta, B_z\} = \{0, B_\theta(z), 0\}$$

where the field varies, as was seen in FIG. 13, in the vertical z-direction. The magnetic monopole field also points in the  $\theta$ -direction

$$\mu = \{0, \mu_\theta(z), 0\}$$

where there is a negative gradient of the monopole field in the z-direction due to the location of the microwave waveguides near the sloping hull.

[0025] The force F on the monopole is the gradient of the monopole's magnetic moment  $\mu$  with the magnetic flux density B field

$$F = \nabla(\mu \cdot B) = \{0, 0, \mu_\theta B_\theta'(z) + B_\theta(z)\mu_\theta'(z)\}$$

which says that there is a force on the monopole in the z-direction equal to the magnetic moment times the gradient of the magnetic field in the z-direction plus the magnetic field times the gradient of the magnetic moment in the z-direction.

[0026] Referring to FIG. 18, differentiating the magnetic field in the z-direction shows that the gradient is negative outside the hull. This can also be seen visually in FIG. 13 where the graphs decrease in intensity.

[0027] A negative gradient for both the magnetic moment and the field means that the force on the monopole is negative. The force on the tube connected to the hull is therefore the negative of a negative, yielding a positive lift force.

$$F_{\text{monopole}} = -\{0, 0, \mu_\theta B_\theta'(z) + B_\theta(z)\mu_\theta'(z)\} = -F_{\text{tube}}$$

$$F_{\text{tube}} = +\{0, 0, \mu_\theta B_\theta'(z) + B_\theta(z)\mu_\theta'(z)\}$$

which says there is an upward lift force on the hull due to the combination magnetic monopole and flux tube. This lift



force is in addition to the vertical lift force generated by the spacetime curvature created by the electromagnetic fields themselves.

#### SUMMARY OF THE INVENTION

[0028] This invention is a spacecraft propulsion system that utilizes electromagnetic fields and microwaves to generate negative energy and a spacetime curvature over the hull. The hull consists of a hemispherical dome, a circular array of radial microwave waveguides, a sloping flat hull, and a shallow spherical hull on the bottom. Alternating current high voltage transformers connected to the dome and the sloping hull generate a curving oscillating electric field between the dome and the sloping hull. Due to this oscillation, a horizontal circular oscillating magnetic flux density B field is created around the dome.

[0029] By firing the microwaves at right angles to the B field, negative energy is created over the hull. The negative energy and spacetime curvature pressure generate wormholes between space and hyperspace. Because hyperspace has a low speed of light and positive gravitational potential, low density hyperspace energy flows through the wormholes and onto the hull. The effect of the hyperspace energy is to lessen the mass of the vehicle and to increase the strength of the electromagnetic fields. Because the resistance of hyperspace is less than the resistance of space, electrons spiral down the wormholes into hyperspace. This creates a magnetic field through the wormhole with one pole in our dimension and the other pole in hyperspace. Thus a field of magnetic monopoles is created over the hull.

[0030] The magnetic monopoles, which represent kinetic energy, align themselves with the magnetic flux tubes in order to maximize the total magnetic field. Because there is a gradient of the monopoles and field in the vertical direction, a negative force develops on the monopoles equal to the gradient of the dot product of the magnetic moment of the monopole with the B field. Thus the opposite reaction is a positive force on the flux tubes attached to the hull which is equivalent to bringing the north pole of a magnet together with the south pole of a second magnet. Because the hull constantly regenerates the wormhole field, the hull experiences a constant upward lift force. This is in addition to the lift generated by the spacetime curvature pressure which is proportional to the square of the magnetic flux density B field.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

[0031] **FIG. 1.** Perspective view of cylindrical coordinate system  $\{r, \theta, z\}$ .

[0032] **FIG. 2.** Perspective view of tetrahedron circumscribed by sphere.

[0033] **FIG. 3.** Tetrahedron diagram showing speed of light squared is determined by the tetrahedron.

[0034] **FIG. 4.** Complex number  $z$  representation in the complex plane.

[0035] **FIG. 5.** Perspective view showing multiple log manifold hyperspace dimensions.

[0036] **FIG. 6.** Perspective view of orthogonal hyperspace dimensions.

[0037] **FIG. 7.** Perspective view of  $\text{Log}[z]$  showing cut along origin.

[0038] **FIG. 8.** Perspective view of charge phase shift around a magnetic flux.

[0039] **FIG. 9.** Perspective view of wormhole magnetic flux density B field.

[0040] **FIG. 10.** Perspective view of magnetic monopole wormhole.

[0041] **FIG. 11.** Perspective view of spacecraft.

[0042] **FIG. 12.** Graph showing electrostatic potential and electric field over dome.

[0043] **FIG. 13.** Animation showing circular magnetic field around dome at increasing elevation.

[0044] **FIG. 14.** Perspective view of electric and magnetic fields around hull.

[0045] **FIG. 15.** Perspective view of generation of negative energy.

[0046] **FIG. 16.** Perspective view of monopole misaligned with flux tube with torque.

[0047] **FIG. 17.** Perspective view of monopole aligned with flux tube at zero torque.

[0048] **FIG. 18.** Graph showing negative gradient of flux tube in the  $z$ -direction.

#### DETAILED DESCRIPTION OF THE INVENTION

[0049] 1. The aluminum hull is made by a technique called stretch forming which uses hydraulic cylinders to stretch a large sheet of aluminum to its yield point. This makes the aluminum sheet soft and pliable. Using a die which has been CNC machined to the desired hull profile, the sheet is then die pressed into a very rigid, smooth and lightweight structure requiring no other support. There are actually three dies consisting of a spherical dome, sloping hull, and shallow spherical dome.

[0050] 2. The rest of the hull consists of a cylindrical hull with a radius equal to the upper dome. A segment of this hull is designed on a 3D computer graphics program and stored as a stereolithography \*.stl file. The file is then transmitted over the Internet to a server who prints up the part on an xy-plotter with an ultraviolet laser and ultraviolet light sensitive polymer bath. The computer model is sliced by a special program into many thousands of slices which are printed one over the other until the part is completed. The server returns the part next day by Express Mail. Several parts are then molded using liquid plastic such as to form the complete ring. A sand mold is then constructed from all the molds to form a plastic cylindrical hull having the waveguide slots molded into it. The waveguide silver-coated aluminum boxes are then installed in the slots and connected to the frequency generators and amplifiers. The purpose of the plastic waveguide cylinder is to separate the electrostatic charges on the dome and the sloping hull. In this particular case we used a dome from another spacecraft design which saved on the cost of the die.

I claim:

1. A spacecraft propulsion system consisting of the following components:

- a lower hull made of aluminum sheet having a shallow spherical profile;
- a circular flat sloping hull made of aluminum sheet attached to the top of the lower hull on the periphery;
- an electrically-insulated plastic-molded tubular cylindrical hull containing slots for mounting an array of radial microwave waveguides, attached to top of the flat sloping hull;
- a hemispherical cupola in the shape of a dome made of aluminum sheet mounted on top of the insulated cylindrical hull;
- an array of rectangular microwave waveguides mounted in the waveguide slots of the cylindrical hull;
- a high-voltage alternating current transformer with one side electrically attached to the upper dome and the other side electrically attached to the flat sloping hull; and
- a frequency generator and amplifier to drive the microwave waveguides.

2. By means of claim (1), an oscillating electric field is created between the upper dome and the sloping hull using the high-voltage alternating current transformer.

3. By means of claim (2), an oscillating circular magnetic flux density field is generated around the sloping hull and upper dome.

4. By means of claims (1) and (3), negative energy is generated by the radial microwave beams of the waveguide array impinging on the circular magnetic flux density field around the hull.

5. By means of claim (3), a positive spacetime curvature pressure constituting a lift force is developed over the hull in the vertical direction proportional to the square of the field.

6. By means of claims (4) and (5), a field of wormholes between space and hyperspace are generated over the hull.

7. By means of claim (6), due to the positive gravitational potential between hyperspace and space, low-density hyperspace energy flows through the wormholes onto the hull to reduce the mass of the spacecraft and strengthen relativistically the electromagnetic fields.

8. By means of claim (6), electrons, emitted by the charged hulls, spiraling down the wormholes, generate a field of magnetic monopoles with one pole in space and the other in hyperspace.

9. By means of claims (6) and (3), the magnetic monopoles maximize their kinetic field energy by aligning with the magnetic flux tube.

10. By means of claim (9), the gradient in the vertical direction of the dot product of the magnetic moments of the monopoles with the magnetic flux density field is a negative force on the monopoles and an equal but opposite positive lift force on the magnetic flux tubes attached to hull.

11. By means of claims (10) and (5), a dual method of providing a positive lift force on the spacecraft is constituted.

\* \* \* \* \*



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(54) **PHOTON SPACECRAFT**

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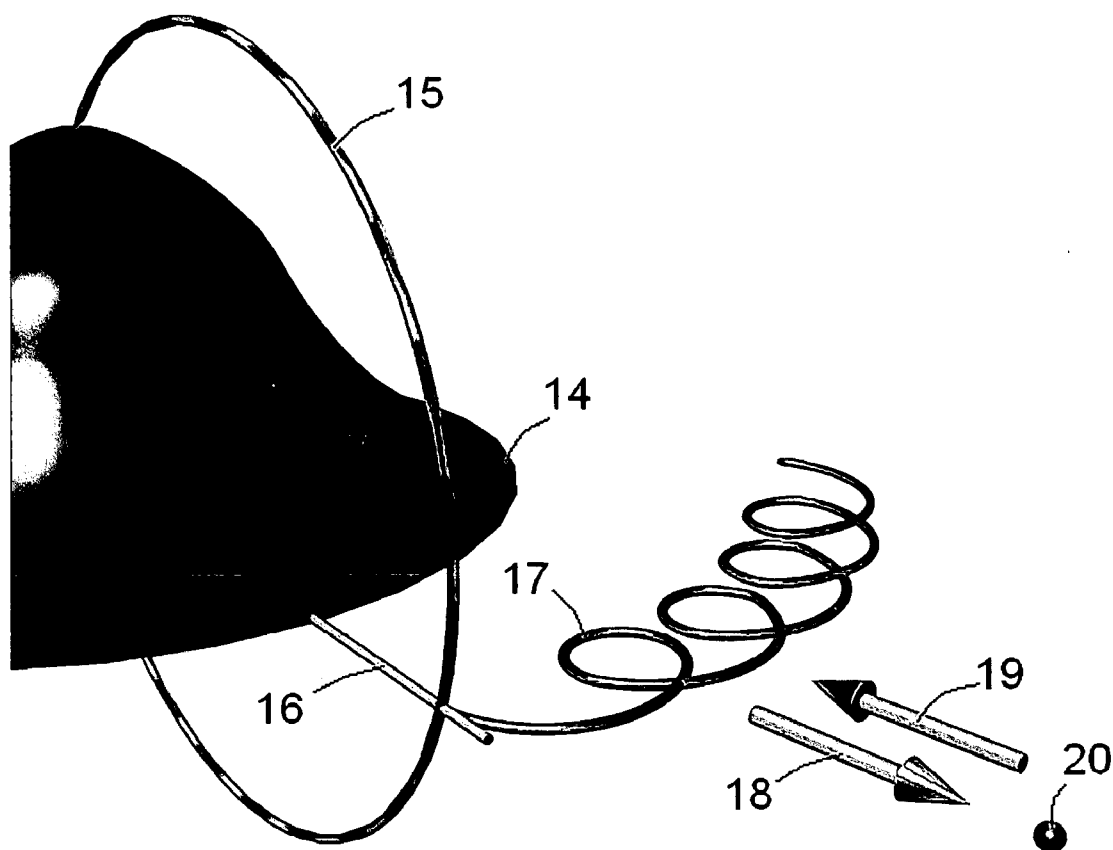
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(57) **ABSTRACT**

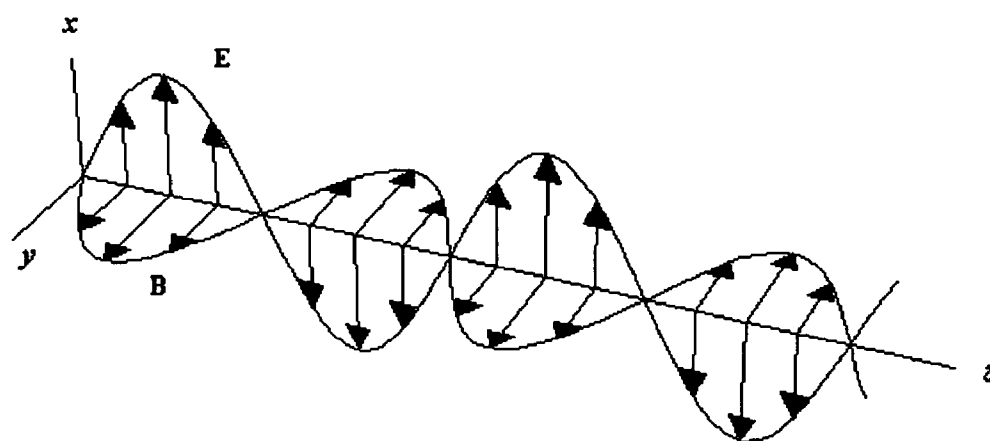
(21) Appl. No.: **11/027,969**

A spacecraft propulsion system utilizing photon particles to create negative energy over the hull in order to generate a lift force on the hull.

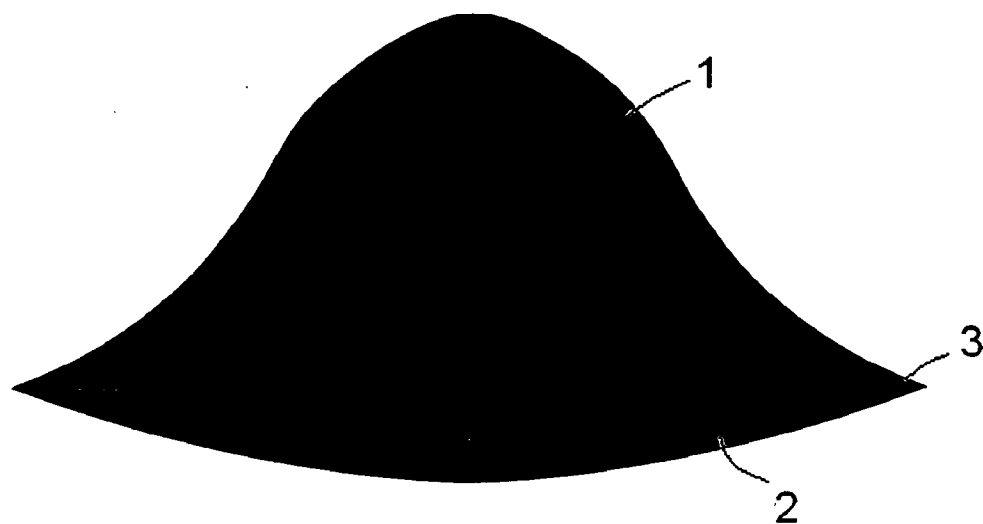
(22) Filed: **Jan. 3, 2005**



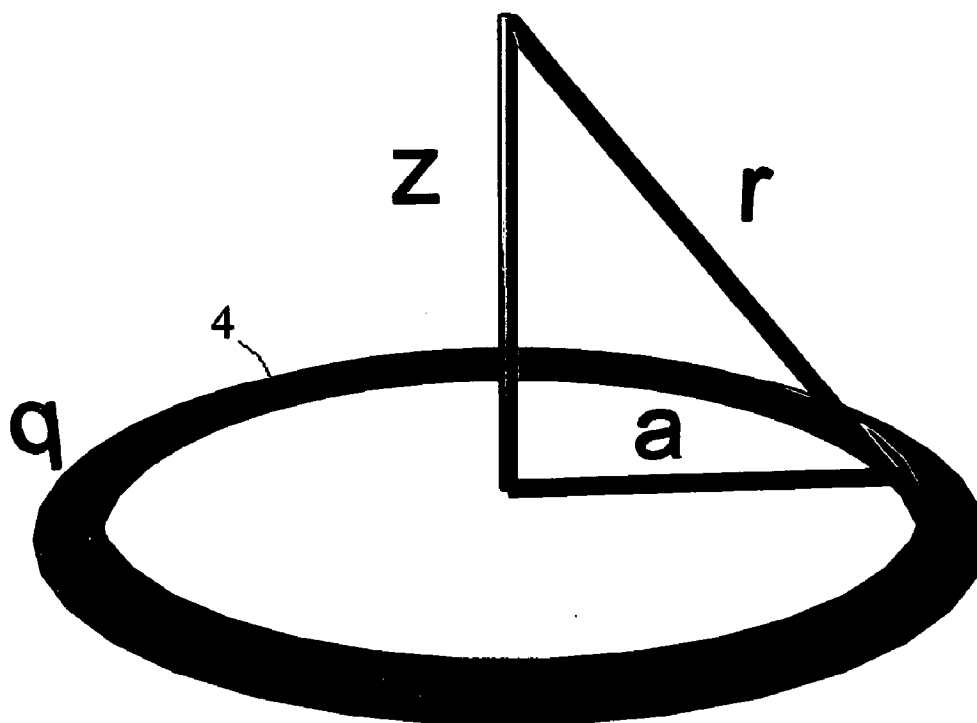
**Figure 1**



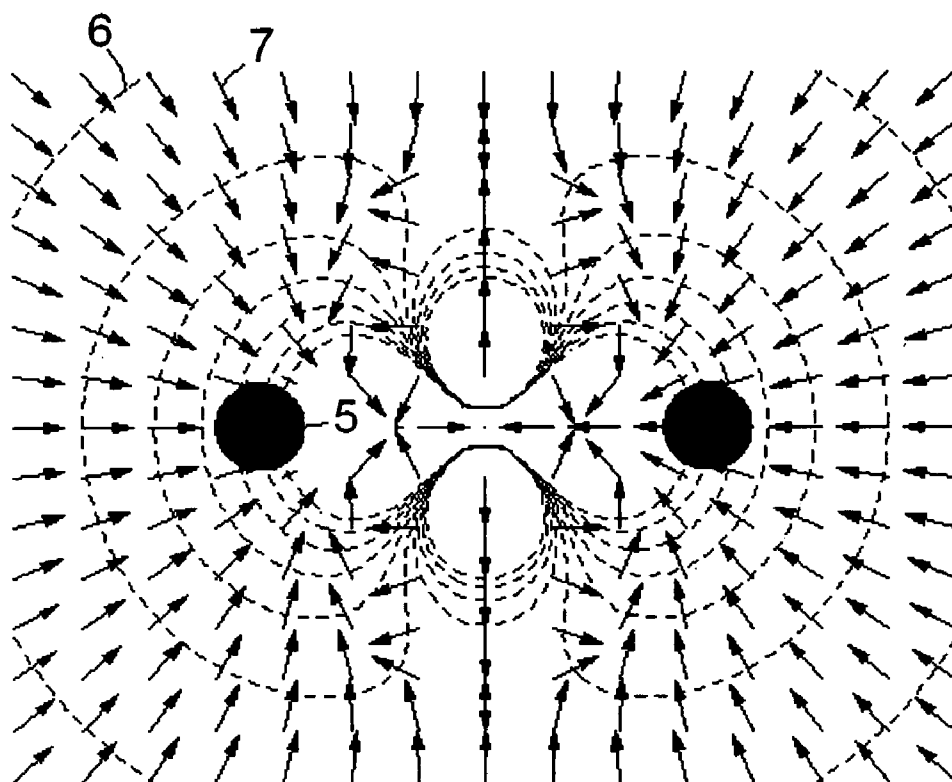
**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**

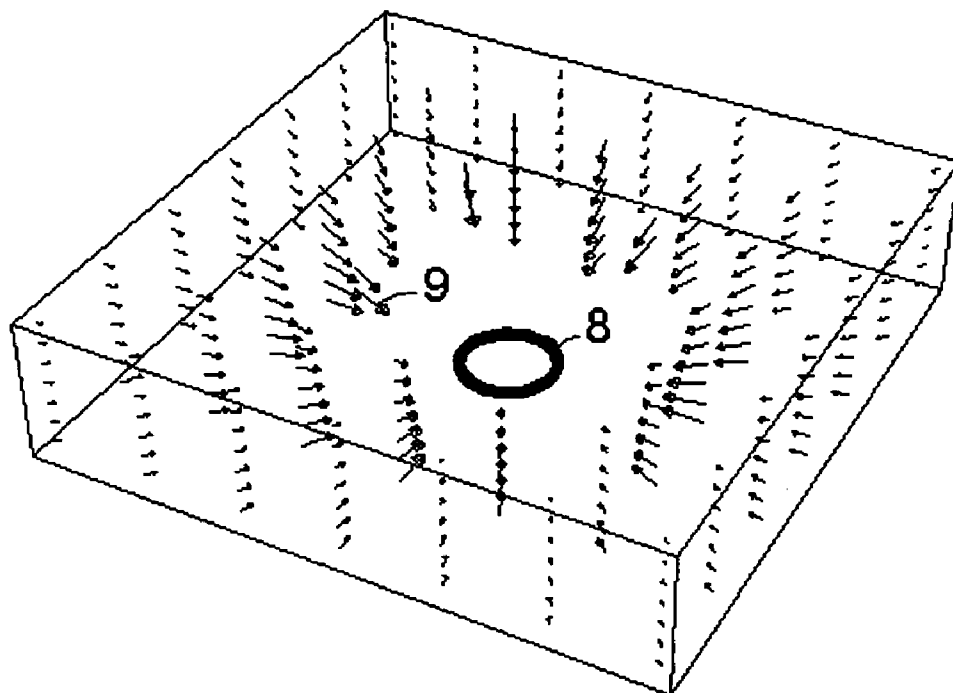
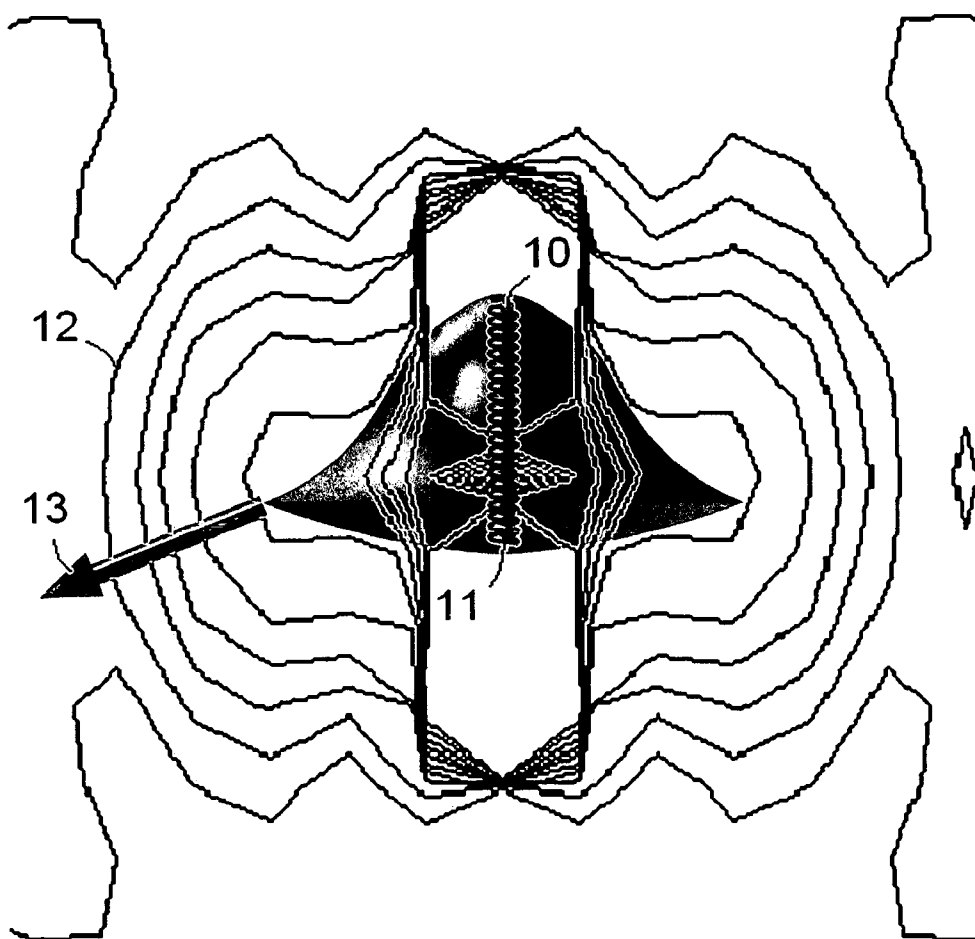




Figure 6



**Figure 7**

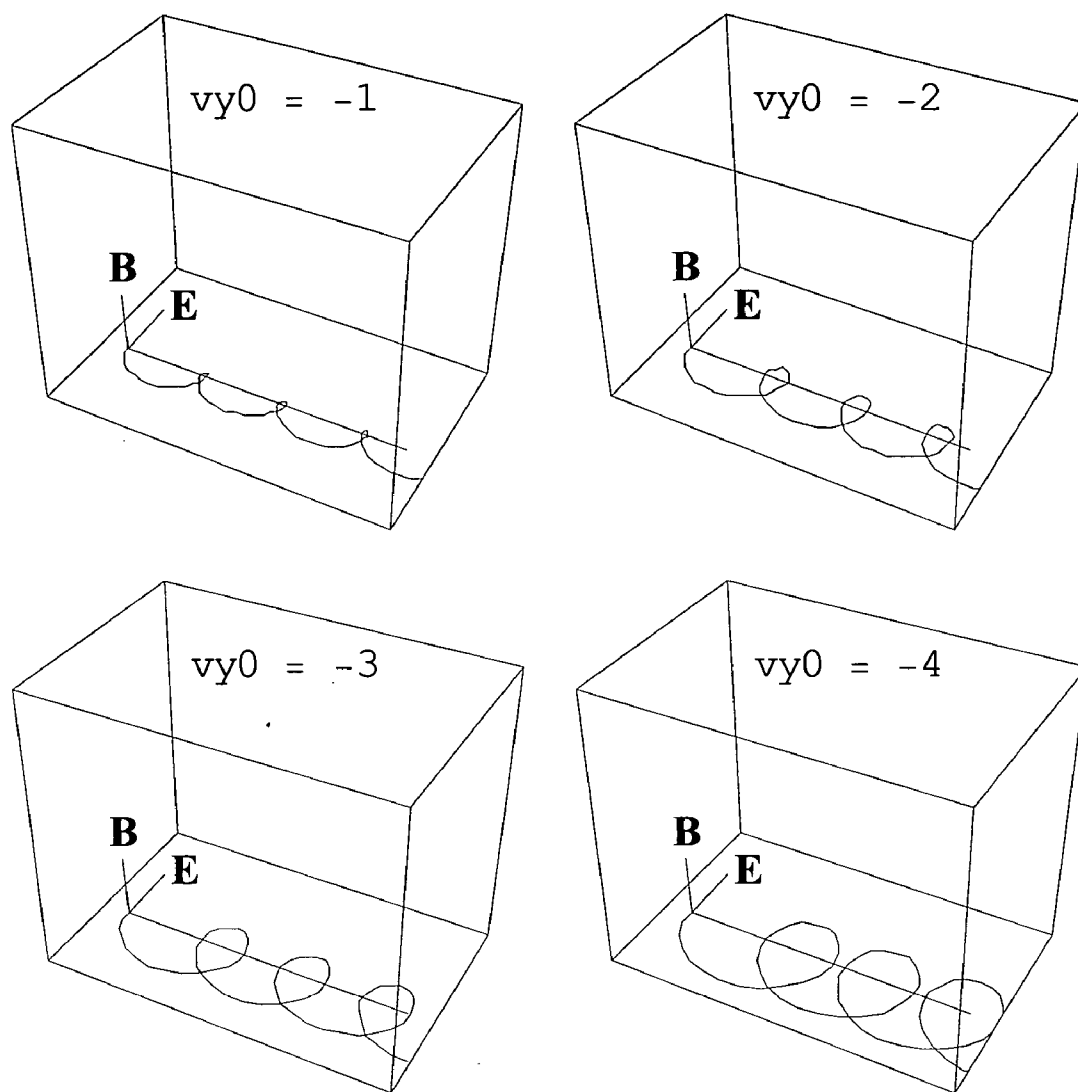
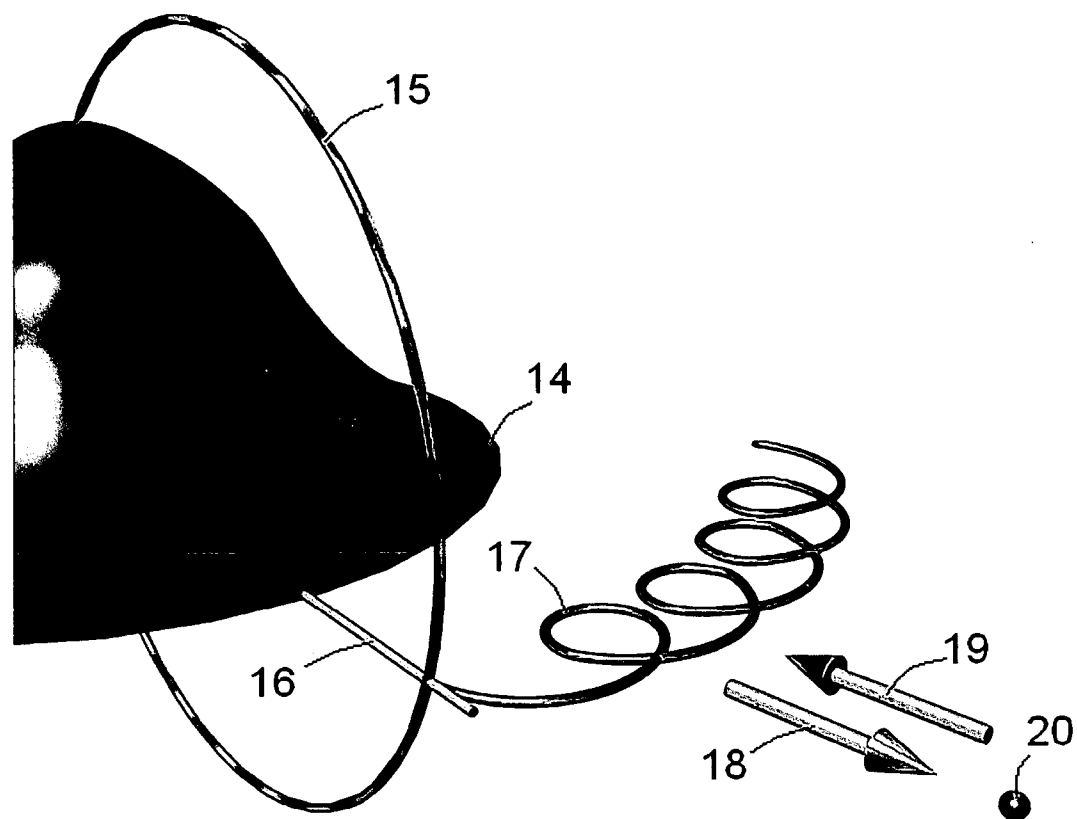
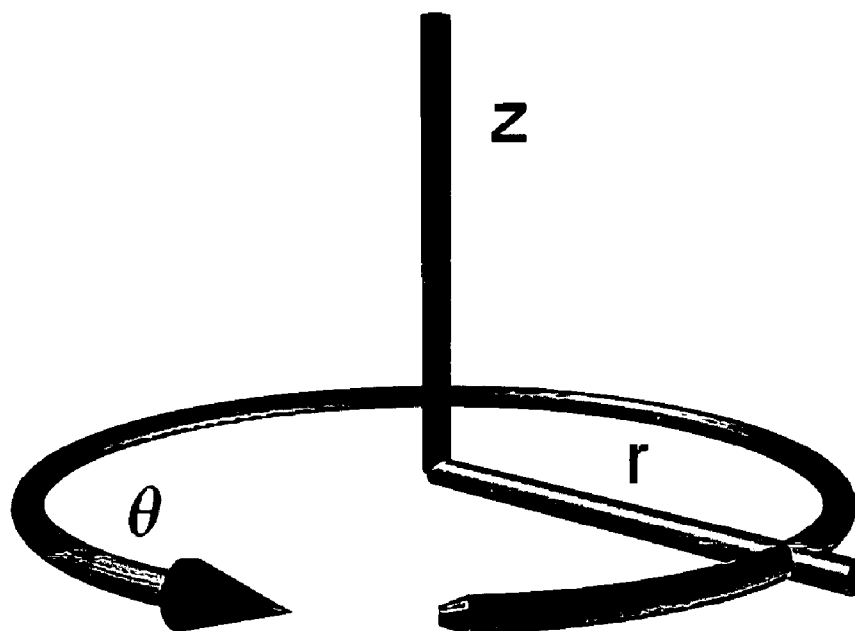


Figure 8



**Figure 9**



## PHOTON SPACECRAFT

### BRIEF SUMMARY OF THE INVENTION

[0001] This invention is a spacecraft propulsion system that employs photon particles to generate a field of negative energy in order to produce lift on the hull.

### BACKGROUND OF THE INVENTION

[0002] Referring to **FIG. 1**, an electromagnetic wave traveling in the z-direction consists of an electric E field vibrating in the x-direction and a magnetic flux density B field vibrating at right angles in the horizontal y-direction. The energy-stress-momentum of this photon can be analyzed using Einstein's General Theory of Relativity and the Faraday F tensor. The Faraday tensor is a 4x4 matrix containing the electromagnetic wave components as shown here in general where c is the speed of light

$$F_{\beta}^{\alpha} = \begin{vmatrix} t & \frac{E_x}{c} & \frac{E_y}{c} & \frac{E_z}{c} \\ x & \frac{E_x}{c} & 0 & B_z \\ y & \frac{E_y}{c} & -B_z & 0 \\ z & \frac{E_z}{c} & B_y & -B_x \end{vmatrix}$$

For this particular photon, this tensor is

$$F_{\beta}^{\alpha} = \begin{vmatrix} t & \frac{E_x}{c} & 0 & 0 \\ x & \frac{E_x}{c} & 0 & -B_y \\ y & 0 & 0 & 0 \\ z & 0 & B_y & 0 \end{vmatrix}$$

[0003] The elemental spacetime length ds squared is equal to sum of the squares of the Cartesian elemental lengths

$$(ds)^2 = -(dt)^2 + (dx)^2 + (dy)^2 + (dz)^2$$

The coefficients of this equation,  $\{-1, 1, 1, 1\}$  are the diagonal components of the g metric tensor

$$g_{\alpha\beta} = \begin{vmatrix} t & -1 & 0 & 0 \\ x & 0 & 1 & 0 \\ y & 0 & 0 & 1 \\ z & 0 & 0 & 1 \end{vmatrix}$$

The stress-energy-momentum tensor T can then be calculated for the photon using the Faraday tensor and the g metric tensor in the following equation from gravitation physics

$$4\pi T^{\mu\nu} = F^{\mu\alpha} F_{\alpha}^{\nu} - \frac{1}{4} g^{\mu\nu} F_{\alpha\beta} F^{\alpha\beta}$$

The stress-energy-momentum tensor indicates the curvature of space due to the application of electromagnetic fields, mass, angular momentum and charge. The mass of the Earth, for example, generates a negative curvature of spacetime such that objects fall toward the mass. The T tensor, which is also a 4x4 matrix, contains the momentum or flux terms in the first row and first column. The normal pressure stress is located along the diagonal. The shearing stresses are located off the diagonal. The energy term is in the upper left corner as depicted here,

$$T^{\mu\nu} = \begin{vmatrix} t & \text{energy} & \text{flux}_x & \text{flux}_y & \text{flux}_z \\ x & -\text{flux}_x & \text{pressure}_x & \text{shear}_{xy} & \text{shear}_{xz} \\ y & -\text{flux}_y & \text{shear}_{yx} & \text{pressure}_y & \text{shear}_{yz} \\ z & -\text{flux}_z & \text{shear}_{zx} & \text{shear}_{zy} & \text{pressure}_z \end{vmatrix}$$

[0004] Since  $B^2 = E^2/c^2$ , the stress-energy-momentum tensor for the photon is therefore

$$T_{\nu}^{\mu} = \begin{vmatrix} t & \frac{-E^2}{c^2} & 0 & 0 & \frac{+E^2}{c^2} \\ x & 0 & 0 & 0 & 0 \\ y & 0 & 0 & 0 & 0 \\ z & \frac{-E^2}{c^2} & 0 & 0 & \frac{+E^2}{c^2} \end{vmatrix}$$

This remarkable result shows that the photon is actually a negative energy particle (top left corner) which is pushed along by a positive pressure wave (lower right corner). The particle has a positive flux (upper right corner) in the z-direction, as well as a balancing negative flux in the lower left corner so that the overall momentum of the universe remains the same. All four components cancel and we see the photon as a massless particle moving at the speed of light.

[0005] Thus the key idea behind this invention is that it is possible to cancel out the pressure term and leave a stationary vibrating electromagnetic field of negative energy over the hull of the spacecraft. The importance of negative energy is that it is a prerequisite to generating wormholes between space and hyperspace.

[0006] Hyperspace consists of the those co-dimensions which have different physics constants such as a low speed of light. The existence of hyperspace, which has a white misty look, is not a well-known scientific concept. Experiments with our magnetic vortex wormhole generators, hyperspace torque generator, full body levitation using Chi Kung breathing, arm levitation by spinning the co-gravitational K field, full body teleportation through hyperspace a distance of 100 meters using a pulsed gravitational wave, jumping into hyperspace, having a plate of toast unfold off the breakfast table and disappear into thin air, walking through walls and doors out-of-dimension, looking into other dimensions, remote viewing through subspace to distances of 100,000 light years, and other electromagnetic experiments carried out by co-researchers, have shown us the reality and existence of hyperspace.

[0007] Referring to **FIG. 2**, the spacecraft consists of an upper (1) and lower (2) hull attached by ceramic insulators

to a circular ring (3). The ring provides support and is attached to an outer sharp-edged rim which is electrostatically charged to a potential  $-V$ . The purpose of the charged rim is to generate a radial electric  $E$  field around the vehicle.

[0008] Referring to FIG. 3, the radius of the ring (4) is equal to  $a$ . The distance from a point on the ring to the  $z$ -axis is  $r$ . The potential on the  $z$ -axis is therefore the charge divided by the distance,

$$potZ = \frac{q}{\sqrt{a^2 + r^2}}$$

This potential is expanded as a series in terms of inverse radius  $r$

$$potZ_{out} = \frac{35qa^8}{128r^9} - \frac{5qa^6}{16r^7} + \frac{2qa^4}{8r^5} - \frac{qa^2}{2r^3} + \frac{q}{r}$$

The potential outside the ring can be written in terms of the Legendre polynomials  $P$

$$V_{out} = \sum_{n=0}^s \left(\frac{a}{r}\right)^{n+1} A[n] LegendreP[n, \cos(\theta)]$$

where  $s$  is the number of terms in the expansion. By equating the known particular solution  $potZ_{out}$  on the  $z$ -axis with the general  $V_{out}$  solution, the coefficients  $A[n]$  are found to be

$$\begin{aligned} A(0) &= \frac{q}{a} \\ A(1) &= 0 \\ A(2) &= \frac{-q}{2a} \\ A(3) &= 0 \end{aligned}$$

which are substituted back into the  $V_{out}$  equation to get the potential outside the ring.

[0009] Referring to FIG. 4, the potential (dotted lines 6) looking at a slice through the ring (5) is shown together with the electric  $E$  field. The negative gradient of the potential is the electric field (7) shown by the direction of the arrows. The importance of this diagram is that the electric field points in the radial direction toward the negatively charged ring. The force on an electron is the electron charge times the electric field

$$F = q_e E_r = -|q_e|(-|E_r|) = +F$$

Because the electron charge is negative and the radial field points in the negative direction toward the ring, the force on the electron is positive. Thus the electron moves away from the ring in the positive radial direction. A 3-dimensional plot of the ring (8) and the electric field (9) is shown in FIG. 5.

[0010] The stress-energy-momentum generated by a radial electric field is calculated using the Faraday  $F$  tensor

$$F_{\alpha\beta} = \begin{vmatrix} 0 & E_r & 0 & 0 \\ E_r & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{vmatrix}$$

The  $g$  metric tensor has to be given in spherical coordinates  $\{r, \theta, \phi\}$

$$g_{\alpha\beta} = \begin{vmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & r^2 & 0 \\ 0 & 0 & 0 & r^2 \sin^2(\theta) \end{vmatrix}$$

where  $\theta$  is the angle from the vertical to the radius  $r$ . The stress tensor  $T^{rr}$  along the radial direction is

$$T^{rr} = \frac{E_r^2}{8\pi c^2}$$

which shows that the pressure is negative along the radial line equal to the square of the radial electric field divided by the square of the speed of light. Because the field is squared, it doesn't matter that the electric field points in the negative direction. The square makes it positive, but the overall curvature pressure is negative. Thus this negative pressure cancels out the positive pressure propelling the photon along. The second key idea of the invention is how to generate this photon moving in the radial direction.

[0011] It has been known for a long time in physics that an electron moving in a circular path will emit photons in a process known by the German word Bremsstrahlung which is translated as "braking radiation." There are several types of radiation such as classical Bremsstrahlung involving a charged particle making a collision with another charged or uncharged particle in which photons are emitted. The quantum mechanical Bremsstrahlung involves the sudden appearance or disappearance of a charged particle which also emits radiation. In space, having a field of wormholes in which the electrons are spiraling down into hyperspace would result in the emission of photons by the quantum mechanical method. Also, in the atmosphere, having collisions with air molecules results in emission of photons in the classical way.

[0012] In order to get the electrons to spiral around and emit photons, a crossed electromagnetic field is used as shown by the following equation

$$F = q(E_r + v \times B_\theta)$$

where the velocity  $v$  is in the positive radial direction due to the force of the electric field. The velocity crossed with a magnetic flux density  $B$  field in the  $\theta$ -direction makes the electron move sideways back and forth in a wiggling motion.

[0013] Referring to FIG. 6, a direct current solenoid (10), represented by multiple current loops, running vertically

through the center of the hull, generates a magnetic field that curves around the outside of the hull, as shown by contour lines (12). The north pole (11) is at the bottom of the hull. A radial arrow (13) from the electrostatically-charged rim is perpendicular to the magnetic field lines. The cross product in the force equation becomes the electron radial velocity times the magnetic field  $v_r B_\theta$ .

[0014] Referring to FIG. 7, the electric field is in the y-direction and the magnetic field is in the z-direction. The flat looping path in the x-direction is the motion of the electron. The electron, which has a negative charge, starts to move in the direction opposite to that of the electric field. In this particular diagram, the electron acquires a velocity in the negative y-direction. Then a sideways force in the x-direction is produced due to the cross product of the velocity with the magnetic field times the negative charge

$$-q(-v_y \times B_z) = +F_x$$

Depending on the magnitude of the velocity, various size loops can be produced.

[0015] In terms of the hull coordinates, because the flat loop is in the plane of the electric field which points in the radial direction, the electron emits light in the radial direction. This condition means that the negative radial pressure created by the electric field cancels the radial pressure of the photon. Thus the photon becomes a stationary vibrating quantum of negative energy. This has the appearance of a luminescent light source. The stress tensor for this condition is therefore

$$T_\mu^\nu = \begin{vmatrix} -\frac{E^2}{c^2} & 0 & 0 & \frac{E^2}{c^2} \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ -\frac{E^2}{c^2} & 0 & 0 & 0 \end{vmatrix} = -\frac{E^2}{c^2} \text{residual negative energy}$$

[0016] residual negative energy

which leaves a residual negative energy per photon.

[0017] Referring to FIG. 8, the negatively charged rim (14) produces a radial electric field (16) that crosses the magnetic B field (15) of the solenoid. Electrons emitted by the charged rim then encounter this crossed field which makes them spiral (17) around the hull. Because of the tight loop, the electron emits Bremsstrahlung radiation in the radial direction (18). The positive pressure field of the photon, which is directed in the radial direction, is canceled by the negative pressure field (19) created by the electric field. Because the photon energy is negative, a stationary vibrating electromagnetic quantum of negative energy (20) surrounds the hull.

[0018] This negative energy and the pressure stress created by the electromagnetic fields open up wormholes between space and hyperspace. The potential head is positive from hyperspace into space because the energy of hyperspace is more positive than the negative energy field. The low-density hyperspace energy fills the hull and its surrounding space with a white misty hyperspace energy which makes the spacecraft lighter in mass, and therefore lighter in weight within a gravitational field. The actual

physics is more complicated still because the electrons find that the resistance of hyperspace is lower than the resistance of space. Thus they spiral down the wormholes which results in a sudden disappearance of charge. The quantum mechanical effect of this is to radiate even more photons which in turn produce even more negative energy.

[0019] The lift on the hull is generated by the radial electric field. In cylindrical coordinates, the g metric tensor is

$$g_{\alpha\beta} = \begin{vmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & r^2 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix}$$

Using this metric tensor, the pressure stress in the vertical direction  $T^{zz}$  is

$$T^{zz} = \frac{E^2}{8\pi c^2}$$

which is a positive curvature over the hull. The mass of Earth produces a negative curvature in which objects fall toward the mass. By counteracting this negative curvature with a more than positive curvature, lift is developed on the spacecraft. Because the negative energy lowers the effective mass of the vehicle, the acceleration is large with a modest electric field. Moreover, in our dimension, the speed of light is 299792458 meters per second. Hyperspace energy has a speed of light equal to one meter per second. Thus the stress is amplified by a factor of

$$A = \left( \frac{299792458 \text{ m/s}}{1 \text{ m/s}} \right)^2 \approx 9 \cdot 10^{16}$$

Because electromagnetic fields are relativistic, motion in a low-velocity-of-light energy field amplifies their strength.

## SUMMARY OF THE INVENTION

[0020] It is the object of this invention to create a spacecraft propulsion system that produces wormholes between space and hyperspace using negative energy in order to generate lift on the hull. It was discovered in the Riemannian curvature calculations of gravitation physics that negative energy is required to keep open the throat of the wormhole. From experiments with the magnetic vortex wormhole generator, it is known that the proper combination of electromagnetic fields, together with this negative energy, can create a wormhole through which smoke can be blown into hyperspace.

[0021] Referring to FIG. 9, the directions of force, velocity, and electromagnetic fields are referred to in the cylindrical coordinate system  $\{r, \theta, z\}$ . An electrostatically charged sharp-edged ring in the  $\theta$ -direction around the hull of the spacecraft produces a radial electric field. A vertical solenoid in the z-direction through the center of the hull

produces a magnetic field which is perpendicular at the rim to the electric field. With the current in the solenoid flowing in the clockwise ( $-\theta$ ) direction, using the right-hand rule, the magnetic field points in the upward z-direction outside the rim. Because the rim is charged to a negative voltage, the electric field points toward the hull in the negative radial ( $-r$ ) direction. Electrons emitted by the rim travel outward ( $+v$ ) because the charge on the electron is negative which, together with the negative electric field, produces a positive radial force. The radial force on the electron causes it to acquire a velocity which interacts with the magnetic field. The cross product of the velocity ( $+v$ ) with the positive ( $+B$ ) magnetic field produces a sideways force on the electron in the negative  $\theta$ -direction. However, because the charge on the electron is negative, the force is

$$F = -q\{v_r, 0, 0\} \times \{0, 0, B_z\} = \{0, qB_z v_r, 0\}$$

which is positive in the  $\theta$ -direction. It is this sideways force that produces a flat spiraling or looping motion whereby the electron emits photons, known in German as Bremsstrahlung radiation, in the radial direction. The photon, which is actually a quantum of negative energy, has a positive radial pressure which propels it along. Because the radial electric field produces a negative pressure in the radial direction, the two opposite fields cancel in the radial direction to form a residual stationary vibrating negative energy. Thus the hull becomes surrounded by negative energy which, together with the pressure stresses created by the electric field, generates wormholes between space and hyperspace.

[0022] The gravitational potential between hyperspace and space is positive because the hyperspace energy is more positive than the negative energy around the hull. Thus the low-density, low-speed-of-light hyperspace energy flows through the wormhole and fills the hull. This has the effect of reducing the effective mass of the hull. Because the electric field generates a positive pressure over the hull in the vertical z-direction, there is an upward force on the vehicle due to the pressure times the hull area. Since the vehicle has a low mass, there is a modest upward acceleration on the spacecraft equal to the force divided by mass.

#### A BRIEF DESCRIPTION OF THE DRAWINGS

[0023] **FIG. 1.** Perspective view of an electromagnetic wave.

[0024] **FIG. 2.** Perspective view of spacecraft.

[0025] **FIG. 3.** Perspective view of charged ring.

[0026] **FIG. 4.** Planar plot of the radial electric field produced by charged ring.

[0027] **FIG. 5.** Perspective view of radial electric field around ring.

[0028] **FIG. 6.** Planar view of magnetic flux density field contour lines.

[0029] **FIG. 7.** Perspective view of electron motion in crossed electric and magnetic fields.

[0030] **FIG. 8.** Perspective view of production of negative energy around hull.

[0031] **FIG. 9.** Perspective view of cylindrical coordinate system  $\{r, \theta, z\}$ .

#### DETAILED DESCRIPTION OF THE INVENTION

[0032] 1. The hull is made from a single sheet of aluminum which has been stretched to its yield point by hydraulic cylinders. An upper and lower die is CNC machined to the profile of the hull. The soft sheet is then clamped in the die where it takes on the smooth shape of the hull without any wrinkles. The hull is extremely rigid after forming and does not require any structural reinforcements.

[0033] 2. A section of the aluminum ring is made in a 3D computer graphics program. The model is stored as a stereolithography file (\*.stl). The computer model is then sent via Internet e-mail to the stl server who prints the part in an ultraviolet light-cured polymer. The part is returned the next day by Express Mail. Using a rubber blanket mold to create several ring sections, the entire ring is assembled together in another wooden mold box having thin circular laminate-coated particulate wall boards on either side of the ring. Then a liquid rubber mold is poured on top of the ring and allowed to harden overnight at room temperature. Since the rubber mold is flexible, the ring can be extracted fairly easily. This ring model is then sent to the foundry where it is cast in aluminum using the lost wax process in which a wax mold evaporates out of the sand casting. We are also experimenting with non-magnetic copper casting metals containing beryllium having good conductivity.

[0034] 3. A 11.5 cm plastic pipe is mounted on a rotating fixture driven slowly by a microcontroller, stepper motor, and power electronics board. Using a large diameter insulated wire, such as a 17 AWG with a wire diameter of 0.127 cm, the wire is wound slowly on the pipe and expoxied so that the windings don't come loose. The solenoid is then mounted vertically in the hull supported by the support ring and driven by a current generator located nearby on the test rig.

[0035] 4. The ring is driven by a high voltage electrostatic generator similar to the night vision scope high voltage power supplies. The ring charge is isolated from the hull by ceramic insulators.

I claim:

1. A spacecraft propulsion system comprising the components:

an aluminum horizontal circular structural support ring;

an aluminum hull in the shape of a high dome on top and shallow dome on the bottom attached to the circular support ring using ceramic insulators;

an electrostatically negatively-charged sharp-edged circular ring, preferably of non-magnetic aluminum or copper, attached with ceramic insulators to the outside of the support ring;

a solenoid mounted through the center of the hull in the vertical direction and attached to the center of the support ring;

an electrostatic high-voltage generator to drive the outer electrostatic ring; and

a direct high-current generator to drive the solenoid.



2. The method of claim 1, wherein a negative radial electric field is generated around the hull by placing a negative potential on the sharp-edged electrostatic ring using the electrostatic generator.

3. The method of claim 1, wherein the current-driven solenoid generates a vertical magnetic field around the hull with the north pole of the solenoid facing down through the bottom of the hull which causes the magnetic flux density field to point up outside the rim.

4. The method of claim 1, wherein electrons are emitted radially by the sharp edge of the charged ring.

5. The methods of claims 2, 3 and 4, wherein the crossed electromagnetic fields cause the electrons to spiral around in flat loops during which photons are emitted in the radial direction.

6. The methods of claims 2 and 5, wherein the negative radial pressure created by the electric field cancels the positive radial pressure of the photon to leave a residual quantum of negative energy per photon around the hull.

7. The methods of claims 2 and 6, wherein the pressure stress created by the electric field, and the negative energy combine to form wormholes between space and hyperspace.

8. The method of claim 7, wherein low-density hyperspace energy of a higher gravitational potential flows through the wormholes to fill the hull and surrounding space around the hull with the effect of reducing the effective mass of the spacecraft.

9. The method of claim 2, wherein the electric field generates a positive pressure in the vertical direction over the hull which together with the hull surface area, generates an upward lift force on the hull.

10. The method of claim 6, wherein the negative energy, having a low light speed, amplifies the strength of the electromagnetic fields and pressure stress fields.

11. The methods of claims 4 and 7, wherein the electrons spiral down the low resistance wormholes into hyperspace such as to create a sudden disappearance of electrical charge which quantum mechanically causes a large emission of additional photons.

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